XBOXER HEAT EXCHANGE UNITS

WIDE RANGE OF ENERGY EFFICIENT
HEAT RECOVERY UNITS WITH OPTIONAL INTEGRATED CONTROLS.

ecosmart
OPTIONS AVAILABLE

BENEFITS

HIGH EFFICIENCY
Heat exchanger efficiency of up to 70%, alongside high efficiency motors and backward curved impellers.

ENERGY EFFICIENT CONTROLS
Full Ecosmart control compatibility provides a simple 'plug & go' control solution with BMS interface and trickle and boost as standard.

NO CONTROL OPTION AVAILABLE
Now available on all sizes.

SPACE SAVING SOLUTIONS
Stacked or horizontal units, provide the most effective solution.

QUIETEST SOLUTION
Units are double skinned keeping breakout noise to the lowest possible levels.
Optional acoustic enclosure available.

WIDE RANGE
Horizontal, stacked and twinfan options available up to 5m^3/s.

QUICK COMMISSIONING
Integrated supply and extract fan allows precise system duty can be quickly and accurately set. (Ecosmart models only).

EASY INSTALLATION
All XB models (sizes 2 - 6) are supplied in one piece. XBH and XBV models (sizes 6, 7, 8, 9 & 10) are supplied in 3 sections (unless otherwise specified) for delivery, ready for site assembly.

EASY MAINTENANCE
Left or right hand options (in direction of airflow) – will provide full access to components. For access requirements contact Nuaire.

INTEGRATED SUMMER BYPASS
Operates automatically via integrated factory set temperature sensors.

WEATHERPROOF DETAIL
Can be factory or fitted on site, please refer to page 53 for details.
Note: weather proof enclosure for XB2 - XB5 is supplied as a separate component.

ADVANCED CONDENSATE REMOVAL
Miniature condensate pump option, for applications where the distance to discharge is great. Pump also enables a 'micro bore' type pipe to be used.

FILTER OPTIONS
G4 fitted as standard. Higher grade integrated filters available. Duct mounted ancillary also available.

DX COIL OPTION AVAILABLE
Please contact Nuaire.

CONSTANT PRESSURE CONTROL AVAILABLE
For further details please contact Nuaire.

HEATER BATTERY OPTIONS
Unit with integral battery, LPHW or electric.

ANCILLARIES
A range of ancillaries are available including manometers, bulkhead lights, view ports, drain trays & traps.

For further details please contact Nuaire.

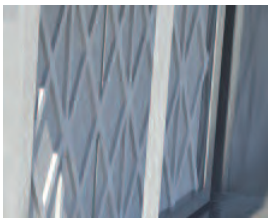
5 YEAR WARRANTY
On Ecosmart models for peace of mind.
No control models have a 2 year warranty. Contact Nuaire for details.

FEATURES INCLUDE:


With electric heater.


With LPHW.

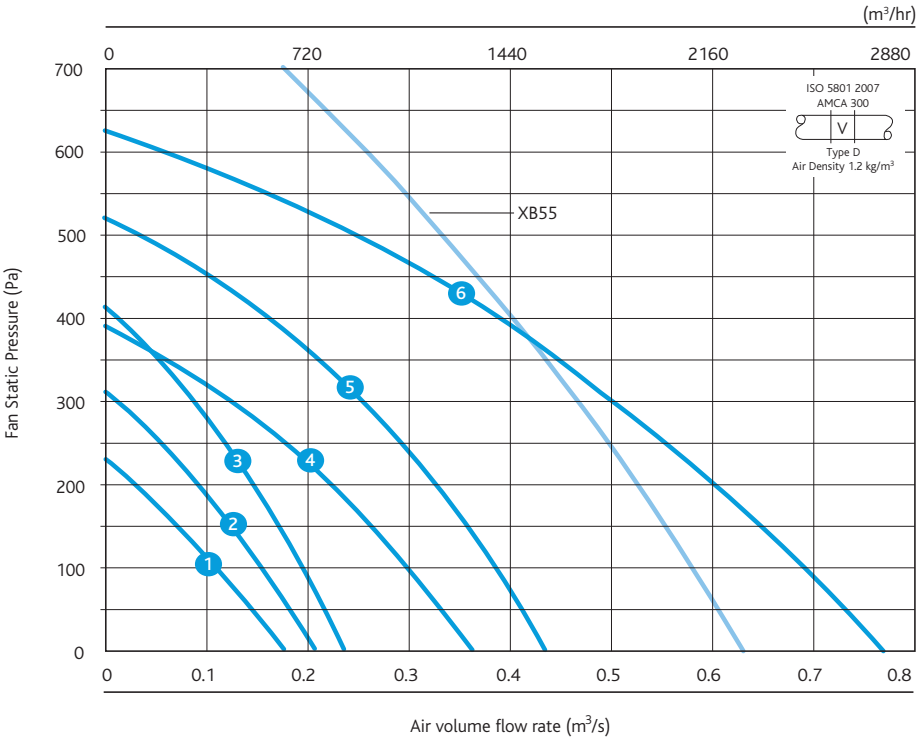

Constant Pressure control option.


Filter option.


Bottom access available (XB2-5).

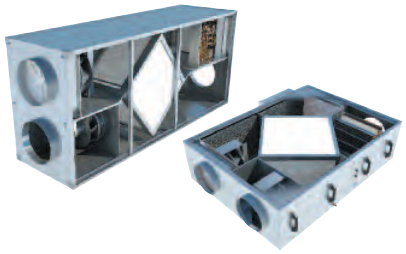
PERFORMANCE - XBOXER HEAT EXCHANGE

XBOXER Horizontal sizes: (XB2-5) and (S1-XB and S6-XB) and stacked sizes (S2-5 XBV)



Note: refer to page 56 for XB55 horizontal unit for internal mounting only.

Casing



Code descriptions

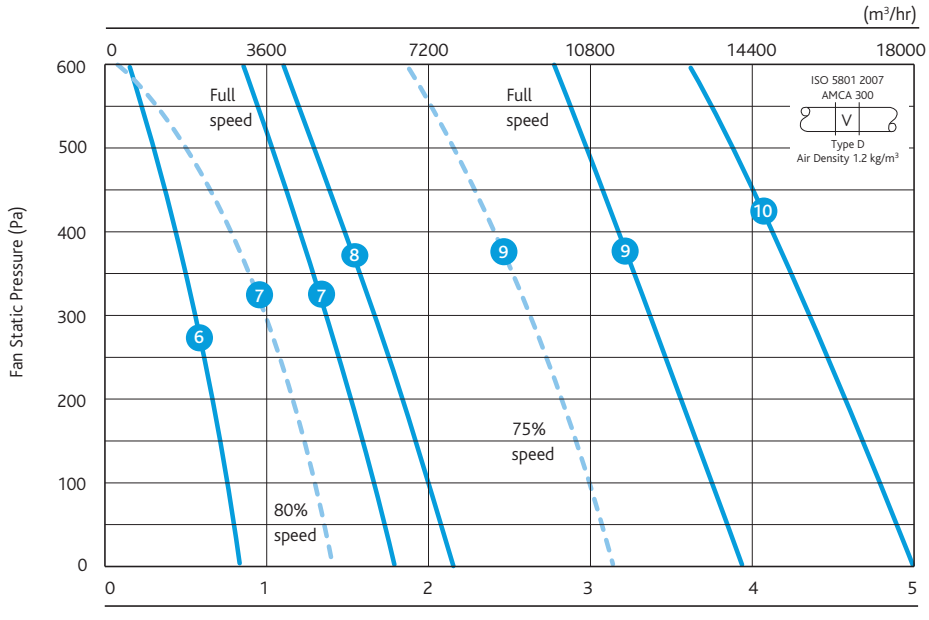
XB2 - R L 2 AE

1 2 3 4 5 6

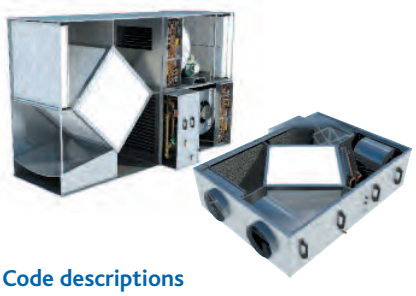
1. Xboxer (S1-XB or XB2-5 or S6XB or S2-5 XBV)
2. Curve ref.
3. Component layout
   L = Left hand
   R = Right hand
4. Type of heater battery fitted
   N= No heater
   L = LPHW
   E = Electric
5. 1 = 1 row coil or 2 = 2 row coil
6. Optional Acoustic Enclosure (sizes XB2 - 5 only)

*For coil options please see page 74.

XBOXER Horizontal sizes: (S6-10 XBH) and stacked sizes: (S6-10 XBV)



Casing



Code descriptions

S6NC - XBV - R L 3 WP

1 2 3 4 5 6 7

1. Curve Ref. (S6-10XBH) or S6-10XBV
2. Ecosmart control as standard
   NC = No control (sizes 1 - 10)
3. Xboxer (XB/H or XBV)
4. Component layout
   L = Left hand
   R = Right hand
   Handings in direction of supply air.
5. Type of heater battery fitted
   N= No heater
   L = LPHW
   E = Electric
6. 1 = 1 row coil or 2 = 2 row coil
7. Optional weather proof kit

*For coil options please see page 74.

PERFORMANCE - XBOXER HORIZONTAL XB AND XBH AND STACKED XBV

ELECTRICAL, SOUND & WEIGHT

Curve	Code	Phase	Motor power watts	Start current (amps)	Full load current (amps)	Electric Heater (kW)	Heater FLC (amps)	LPHW Heater (kW)		Induct Sound Power Levels dB re 1pW 63	125	250	500	1K	2K	4K	8K	Breakout dBA @3m	Weight (Kg)
1	S1-XB-**	1	172	1.28	1.28	-	1.28	*	Intake	60	55	54	47	41	37	33	29	33	75
									Supply	64	67	63	59	62	60	57	53		
									Discharge	68	69	64	61	62	60	56	51		
									Extract	61	60	56	48	41	37	32	28		
2	XB2-**	1	270	1.7	1.7	4.5	18.7	*	Intake	71	71	69	66	62	54	52	49	34	153
									Supply	64	64	64	62	57	57	40	28		
									Discharge	67	70	65	69	60	59	56	49		
									Extract	60	62	53	50	47	37	29	25		
2	S2-XBV-**	1	270	1.7	1.7	4.5	18.7	*	Intake	69	69	67	68	63	59	58	54	36	90
									Supply	67	65	63	57	55	58	44	33		
									Discharge	67	70	65	67	61	55	55	51		
									Extract	59	60	58	52	48	47	42	34		
3	XB3-**	1	410	1.9	1.9	4.5	18.7	*	Intake	75	75	73	70	66	58	56	53	36	153
									Supply	68	68	68	66	61	61	44	32		
									Discharge	71	74	69	73	64	63	60	53		
									Extract	64	66	57	58	51	41	33	29		
3	S3-XBV-**	1	410	1.9	1.9	4.5	18.7	*	Intake	73	73	71	72	67	63	62	58	38	90
									Supply	71	69	67	61	59	62	48	37		
									Discharge	71	74	69	71	65	59	59	55		
									Extract	63	64	62	56	52	51	46	38		
4	XB4-**	1	423	2.8	2.8	4.5	18.7	*	Intake	76	75	71	70	69	60	57	53	36	155
									Supply	64	62	63	61	59	56	46	36		
									Discharge	74	73	70	73	70	68	63	56		
									Extract	67	63	55	57	54	45	37	30		
4	S4-XBV-**	1	423	2.8	2.8	4.5	18.7	*	Intake	74	73	69	72	70	65	63	58	39	94
									Supply	67	63	62	57	57	57	50	41		
									Discharge	74	73	70	72	71	64	62	58		
									Extract	66	61	60	55	55	55	50	39		
5	XB5-**	1	690	3.6	3.6	4.5	18.7	*	Intake	80	79	75	74	73	64	61	57	38	155
									Supply	68	66	67	65	63	60	50	40		
									Discharge	78	77	74	77	74	72	67	60		
									Extract	71	67	59	61	58	49	41	34		
5	S5-XBV-**	1	690	3.6	3.6	4.5	18.7	*	Intake	78	77	73	76	74	69	67	62	43	94
									Supply	71	67	66	61	61	61	54	45		
									Discharge	78	77	74	76	75	68	66	62		
									Extract	70	65	64	59	59	59	54	43		
6	S6-XB-**	1	850	6	6	6	25	*	Intake	82	86	80	68	67	64	57	51	47	212
									Supply	76	79	76	67	62	59	50	40		
									Discharge	85	86	80	74	72	68	61	54		
									Extract	77	80	73	64	59	55	47	44		
6	S6-XBH-**	1	980	6	6	6	25	*	Intake	76	79	76	67	62	59	50	40	39	595
		3				12	16.7		Supply	82	86	80	68	67	64	57	51		
	S6-XBV-**	1	980	6	6	6	25	*	Discharge	77	80	73	64	59	55	47	44		
		3				12	16.7		Extract	85	86	80	74	72	68	61	54		
7	S7-XBH-**	3	4.400 kW	9	9	27	38	*	Intake	75	77	76	74	68	67	65	56	47	630
	S7-XBV-**								Supply	81	81	83	84	78	77	75	66		
									Discharge	76	71	73	79	72	69	67	53		
									Extract	80	83	86	79	74	75	73	69		
8	S8-XBH-**	3	4.400 kW	9	9	54	75	*	Intake	78	82	79	77	71	72	72	58	50	954
	S8-XBV-**								Supply	84	87	86	87	81	82	82	68		
									Discharge	79	76	76	82	75	74	74	55		
									Extract	83	89	89	82	77	80	80	71		
9	S9-XBH-**	3	8.000 kW	17	17	-	-	*	Intake	84	77	76	78	74	69	64	52	46	1517
	S9-XBV-**								Supply	89	84	84	84	85	80	74	66		
									Discharge	84	77	74	79	79	72	66	53		
									Extract	89	84	86	83	80	77	72	65		
10	S10-XBH-**	3	11.000 kW	22	22	-	-	*	Intake	86	79	81	80	75	71	66	56	48	1930
	S10-XBV-**								Supply	92	87	90	87	86	82	75	70		
									Discharge	87	80	80	82	80	74	67	57		
									Extract	91	86	91	85	81	79	74	69		

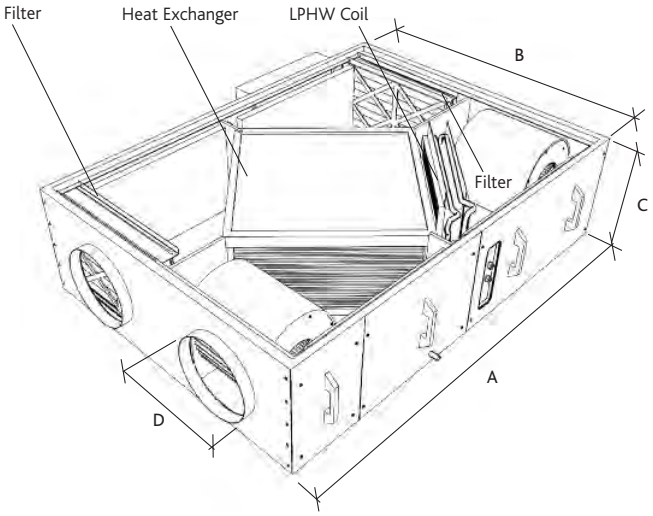
Units are supplied c/w with 2 No.G4 filters as standard. F5 & F7 filters are available as integrated options on supply.
Motor power and current loads are the total for both fans running together. Unit has a soft start function therefore the starting current is identical to the full load.
** Add relevant code for handing and heater type.
* For details on coils, codes and selection please refer to page 74.
Note: Size 6 - 1 phase = supply for fan, 3 phase = supply for electric heater battery.

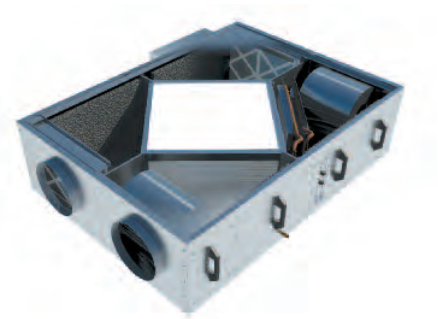
DIMENSIONS AND CONFIGURATIONS

XBOXER Horizontal size S1-XB

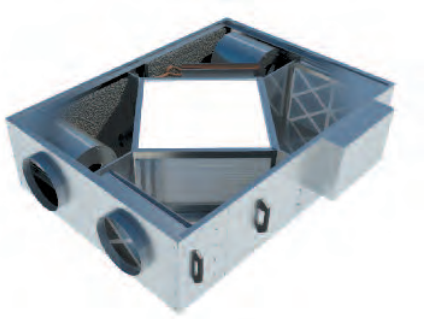
DIMENSIONS (mm)

Code	A	B	C	D
S1-XB	1361	1000	340	250

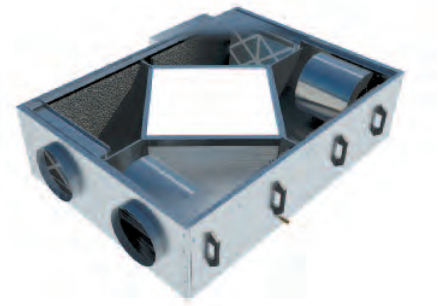




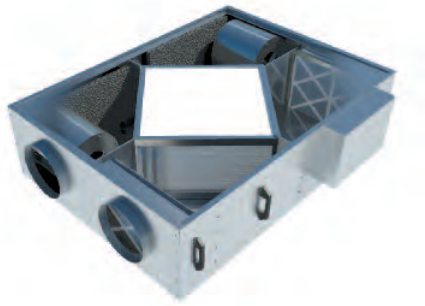
Model shown: S1-XB-LL (left hand with LPHW).



Model shown: S1-XB-RL (right hand with LPHW).



Model shown: S1-XB-LN (left hand with no heater).



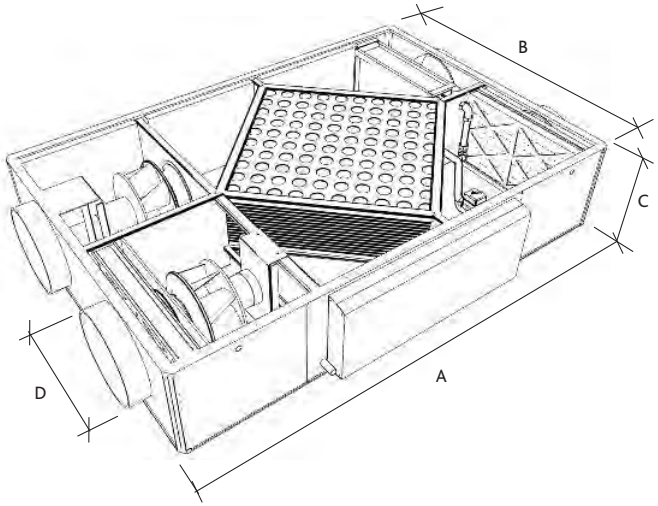
Model shown: S1-XB-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

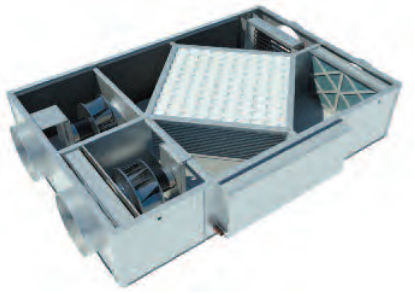
XBOXER Horizontal sizes XB2, 3, 4, 5 and S6-XB

DIMENSIONS (mm)

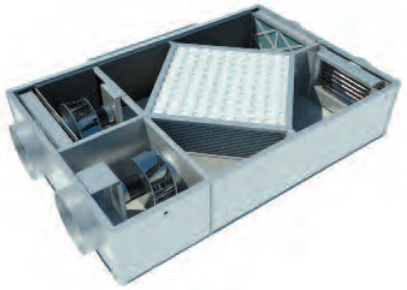
Code	A	B	C	D
XB2	1700	1150	340	315
XB3	1700	1150	340	315
XB4	1700	1150	340	315
XB5	1700	1150	340	315
S6-XB	1700	1150	700	500



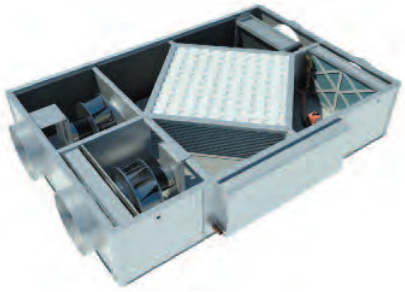
Model shown: XB2-5-LL (left hand with LPHW).



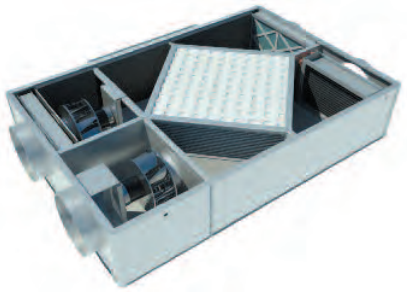
Model shown: XB2-5 and S6-XB-RE (right hand with electric heater).



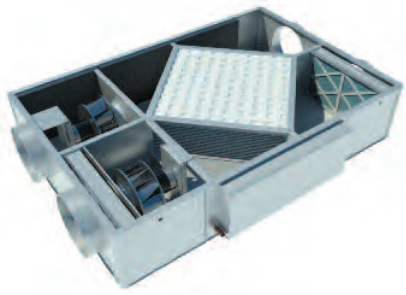
Model shown: XB2-5 and S6-XB-LE (left hand with electric heater).



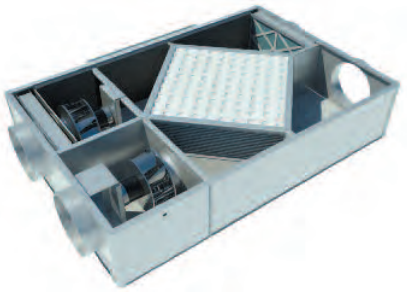
Model shown: XB2-5 and S6-XB-LL (left hand with LPHW).



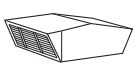
Model shown: XB2-5 and S6-XB-RL (right hand with LPHW).



Model shown: XB2-5 and S6-XB-LN (left hand with no heater).



Model shown: XB2-5 and 6-XB-RN (right hand with no heater).



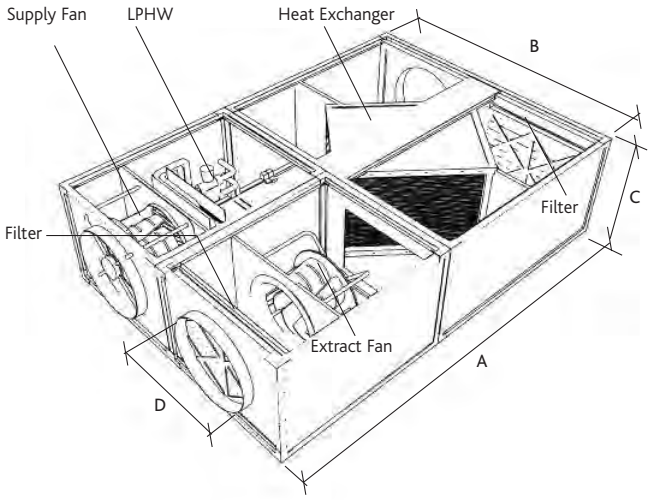
For weatherproof cowls refer to page 53

DIMENSIONS AND CONFIGURATIONS

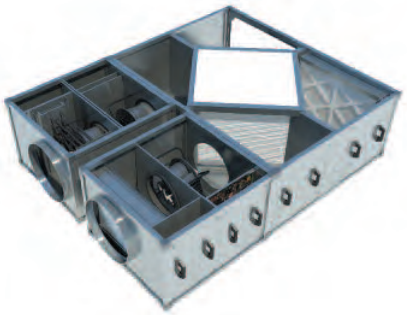
XBOXER Horizontal size S6-XHB

DIMENSIONS (mm)

Code	A	B	C	D
S6-XBH	2800	2000	530	400

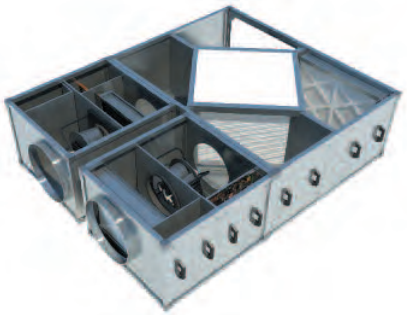


Model shown: S6-XBH-LL (left hand with LPHW).



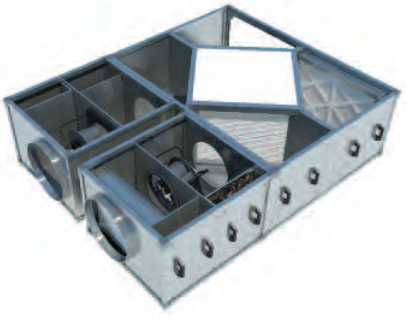
Model shown: S6-XBH-LE (left hand with electric heater).

Model shown: S6-XBH-RE (right hand with electric heater).



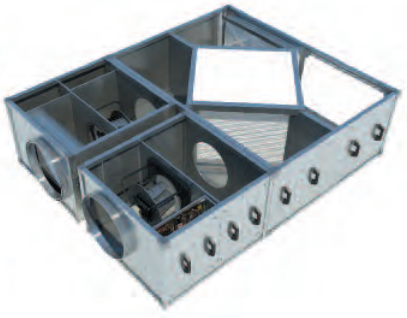
Model shown: S6-XBH-LL (left hand with LPHW).

Model shown: S6-XBH-RL (right hand with LPHW).

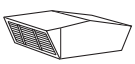


Model shown: S6-XBH-LN (left hand with no heater).

Note: Control box is integral.



Model shown: S6-XBH-RN (right hand with no heater).



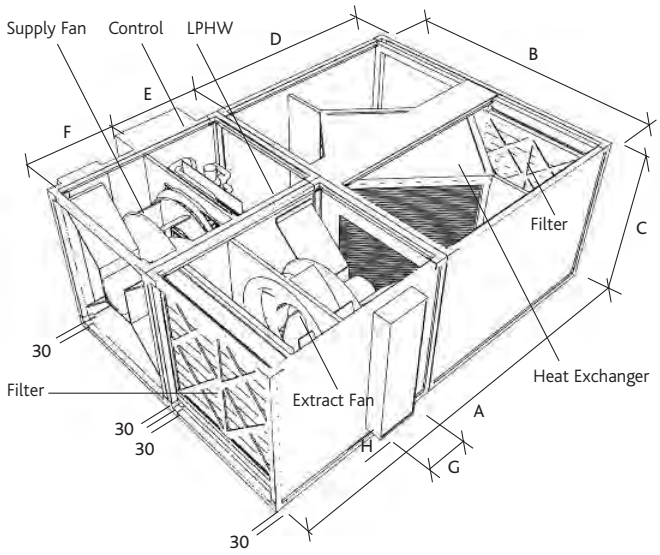
For weatherproof cowls refer to page 53

DIMENSIONS AND CONFIGURATIONS

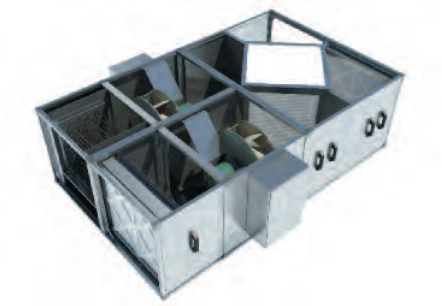
XBOXER Horizontal sizes S7 and 8-XHB

DIMENSIONS (mm)

Code	A	B	C	D	E	F	G	H
S7-XBH	2600	1600	800	1200	600	800	600	350
S8-XBH	3800	2000	1000	2200	600	1000	600	450



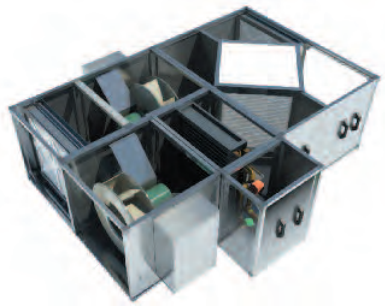
Model shown: S7-8-XBH-LL (left hand with LPHW).



Model shown: S7-8-XBH-LE (left hand with electric heater).

Model shown: S7-8-XBH-RE (right hand with electric heater).

Model shown: S7-8-XBH-LL (left hand with LPHW).



Model shown: S7-8-XBH-RL (right hand with LPHW).

Model shown: S7-8-XBH-LN (left hand with no heater).

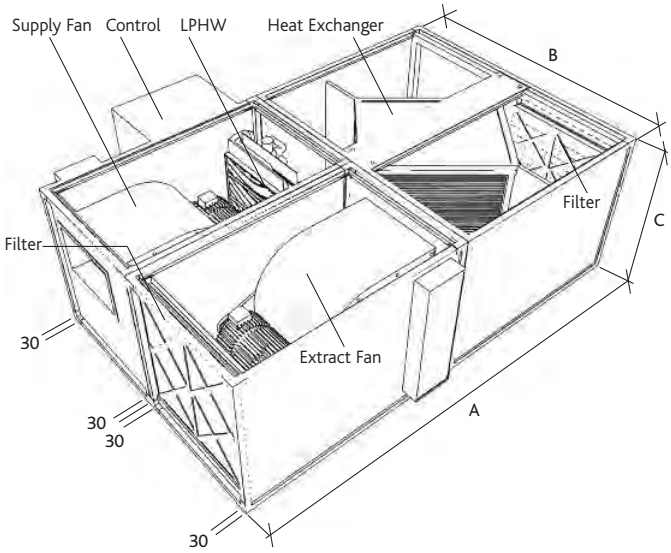
Model shown: S7-8-XBH-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

XBOXER Horizontal sizes S9 and 10-XHB

DIMENSIONS (mm)

Code	A	B	C
S9-XBH	4600	2600	1000
S10-XBH	4600	2600	1300



Model shown: S9/10-XBH-LL (left hand with LPHW).

Model shown: S9/10-XBH-LL (left hand with LPHW).

Model shown: S9/10-XBH-RL (right hand with LPHW).

Model shown: S9/10-XBH-LN (left hand with no heater).

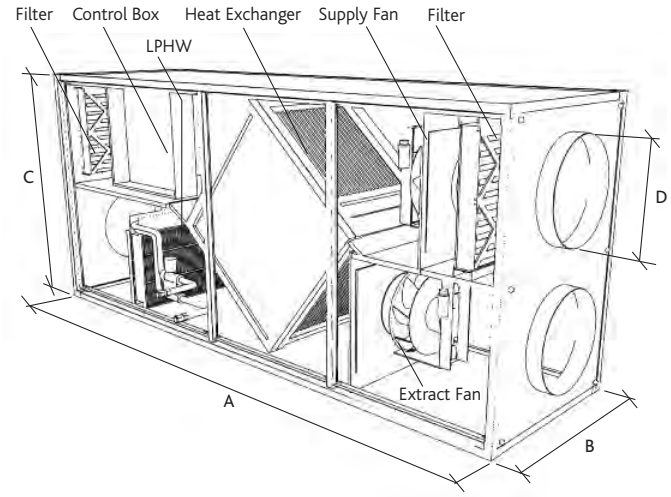
Model shown: S9/10-XBH-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

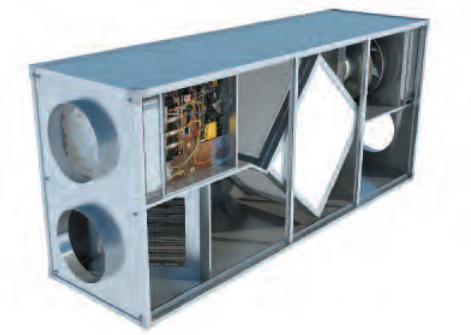
XBOXER Stacked sizes S2, 3, 4 and 5-XBV

DIMENSIONS (mm)

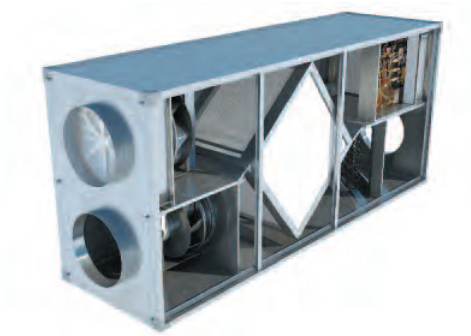
Code	A	B	C	D
S2-XBV	2500	550	820	250
S3-XBV	2500	550	820	250
S4-XBV	2500	550	820	250
S5-XBV	2500	550	820	250



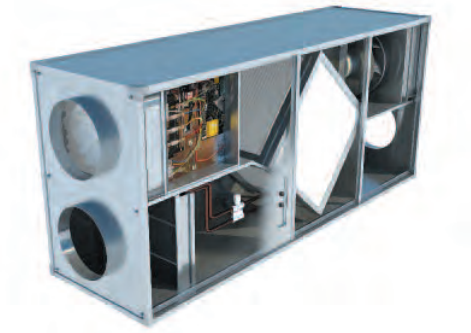
Model shown: S2-5-XBV-LL (left hand with LPHW).



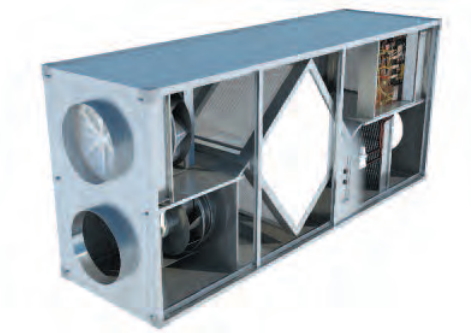
Model shown: S2-5-XBV-LE (left hand with electric heater).



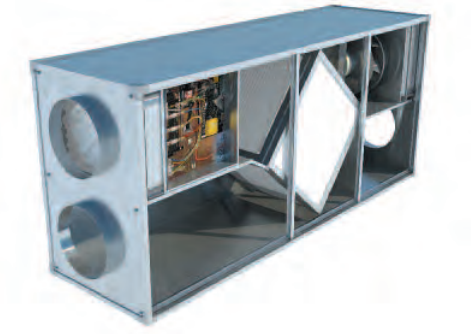
Model shown: S2-5-XBV-RE (right hand with electric heater).



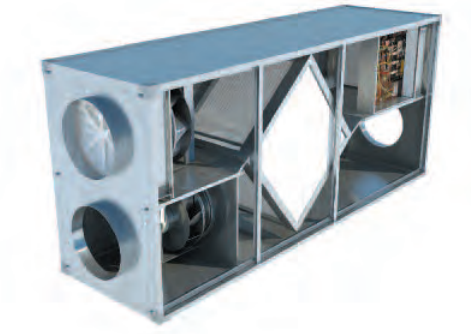
Model shown: S2-5-XBV-LL (left hand with LPHW).



Model shown: S2-5-XBV-RL (right hand with LPHW).



Model shown: S2-5-XBV-LN (left hand with no heater).



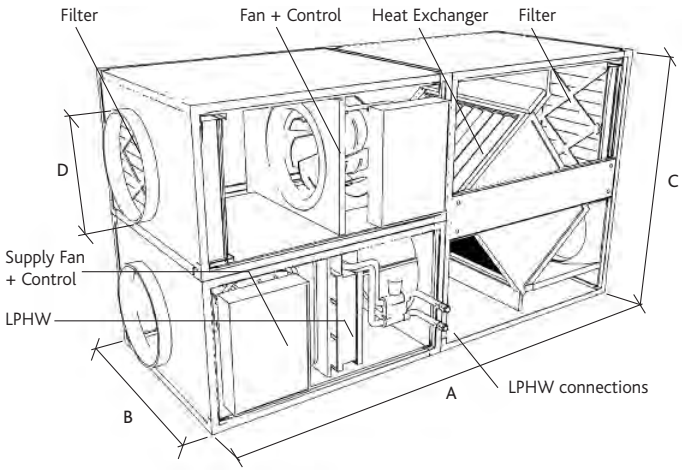
Model shown: S2-5-XBV-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

XBOXER Stacked size S6-XBV

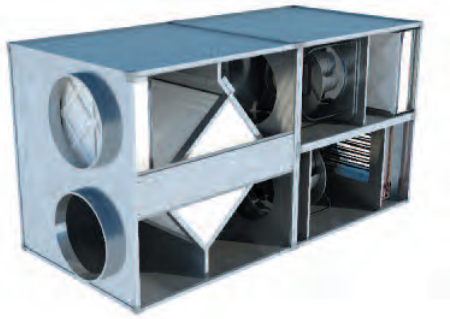
DIMENSIONS (mm)

Code	A	B	C	D
S6-XBV	2000	954	1060	400

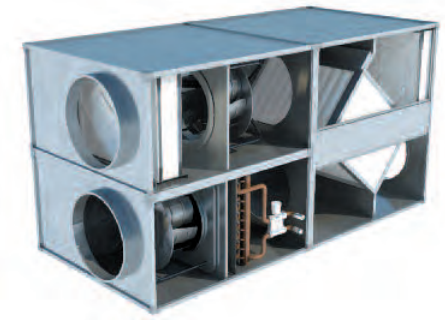


Model shown: S6-XBV-LL (left hand with LPHW).

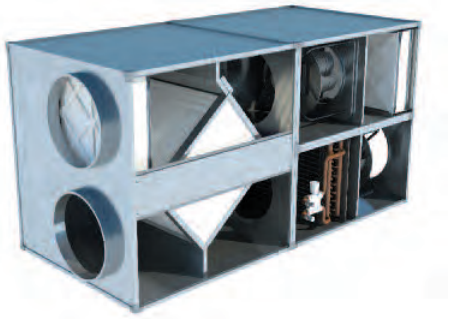
Model shown: S6-XBV-LE (left hand with electric heater).



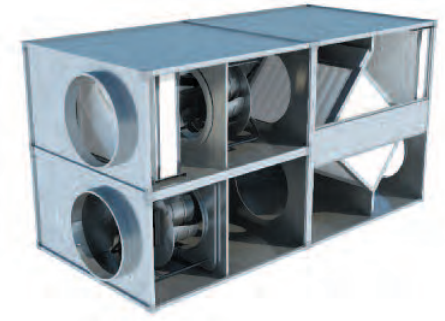
Model shown: S6-XBV-RE (right hand with electric heater).



Model shown: S6-XBV-LL (left hand with LPHW).

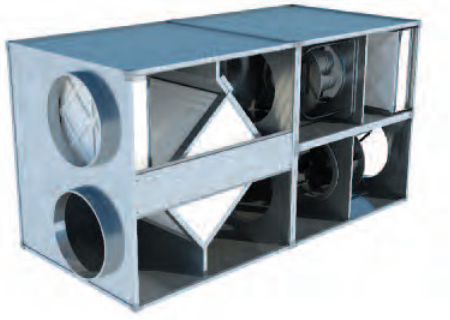


Model shown: S6-XBV-RL (right hand with LPHW).



Model shown: S6-XBV-LN (left hand with no heater).

Note: control box is integral.



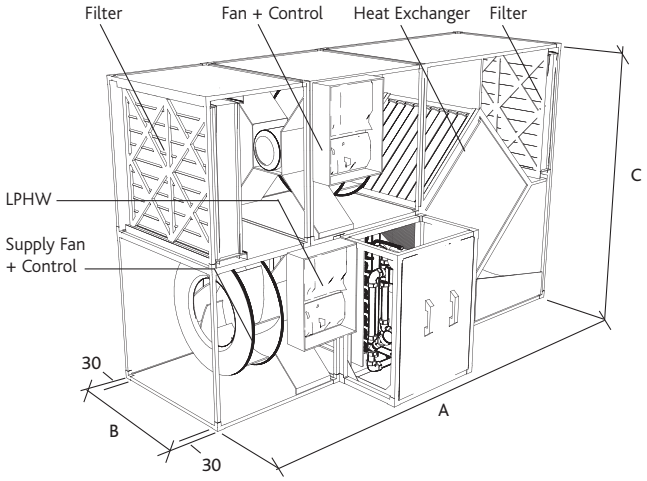
Model shown: S6-XBV-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

XBOXER Stacked sizes S7 and 8-XBV

DIMENSIONS (mm)

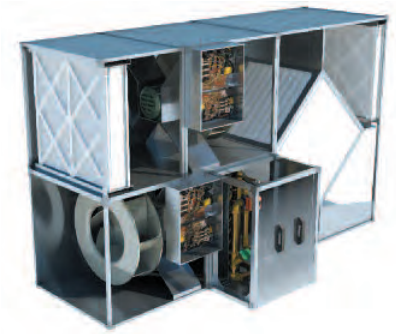
Code	A	B	C
S7-XBV	2600	800	1600
S8-XBV	3800	1000	2000



Model shown: S7-8-XBV-LL (left hand with LPHW).

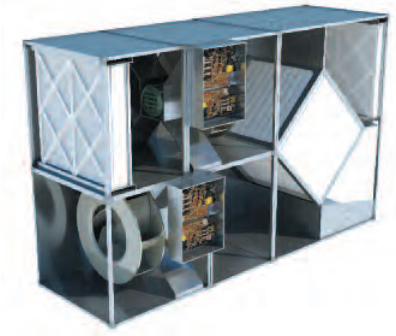
Model shown: S7-8-XBV-LE (left hand with electric heater).

Model shown: S7-8-XBV-RE (right hand with electric heater).



Model shown: S7-8-XBV-LL (left hand with LPHW).

Model shown: S7-8-XBV-RL (right hand with LPHW).



Model shown: S7-8-XBV-LN (left hand with no heater).

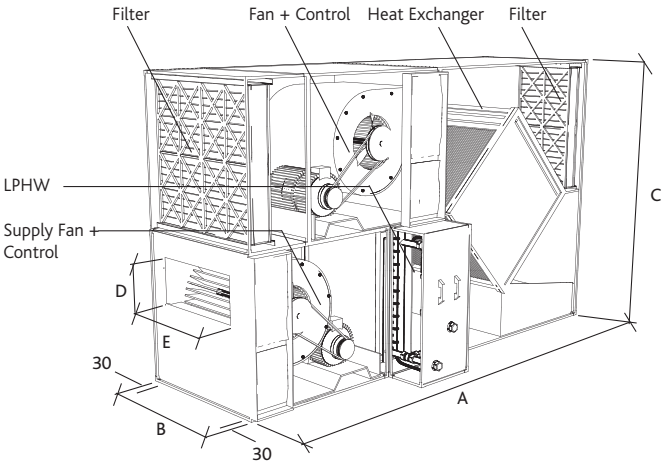
Model shown: S7-8-XBV-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

XBOXER Stacked sizes S9 and 10-XBV

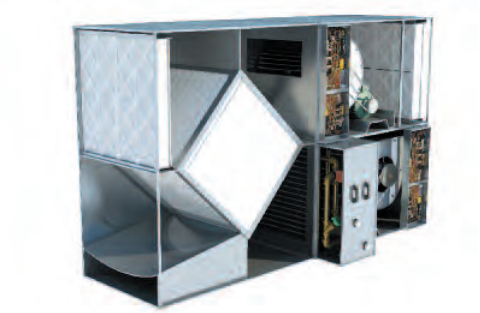
DIMENSIONS (mm)

Code	A	B	C	D	E
S9-XBV	4300	1300	2000	479	557
S10-XBV	4300	1300	2600	638	638

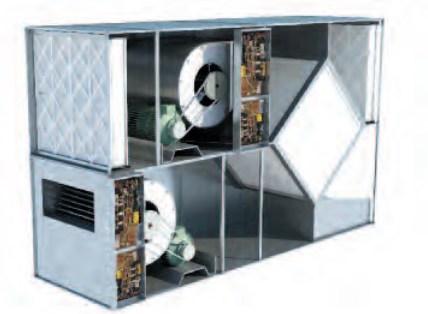


Model shown: S9-10-XBV-LL (left hand with LPHW).

Model shown: S9-10-XBV-LL (left hand with LPHW).

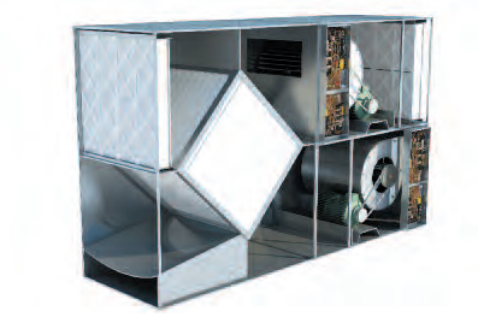


Model shown: S9-10-XBV-RL (right hand with LPHW).



Model shown: S9-10-XBV-LN (left hand with no heater).

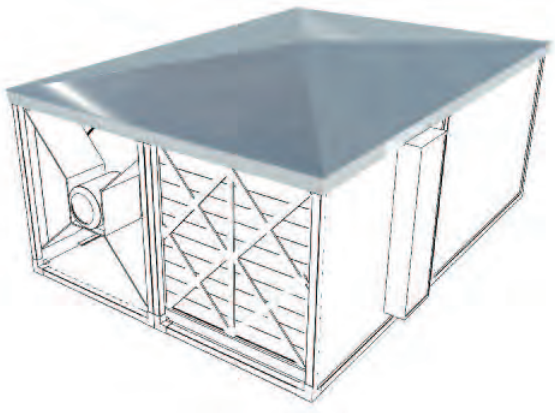
Note: control box is integral.



Model shown: S9-10-XBV-RN (right hand with no heater).

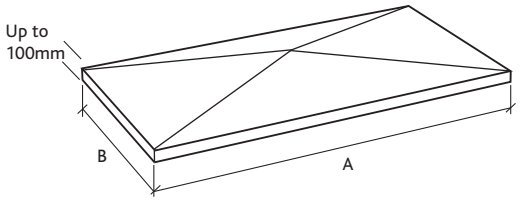
FACTORY FITTED WEATHERPROOF KIT

Horizontal (size 6 - 10)



Stacked (size 2 - 10)

DIMENSIONS FOR WEATHERPROOF KITS



Note: Dimension A = equals the length of XBOXER unit selected from this brochure.
B = equals the width of XBOXER unit selected from this brochure.
Height of weatherproof kit is up to 100mm.
For twin fan Weather Kit use codes SXB - HTWP (Horizontal sizes 2 - 5) and SXB - VTWP (Stacked sizes 2 - 5).

Code descriptions

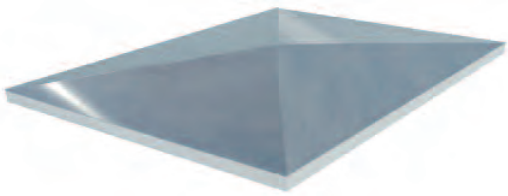
S7 - XBH - LE WP

1 2 3 4

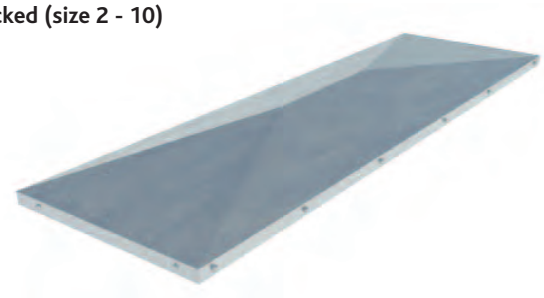
1. Size of XBOXER unit
2. XBH = Horizontal unit
   XBV = Stacked unit
3. LE = Left hand, electric
   RE = Right hand, electric
   LL = Left hand, LPHW
   RL = Right hand, LPHW
   LN = Left hand, no heater
   RN = Right hand, no heater
4. Weatherproof kit fitted to unit and delivered to site

WEATHERPROOF KIT FOR ON-SITE FITTING

Horizontal (size 6 - 10)



Stacked (size 2 - 10)



Code descriptions

SXBH - 7 - LE WP

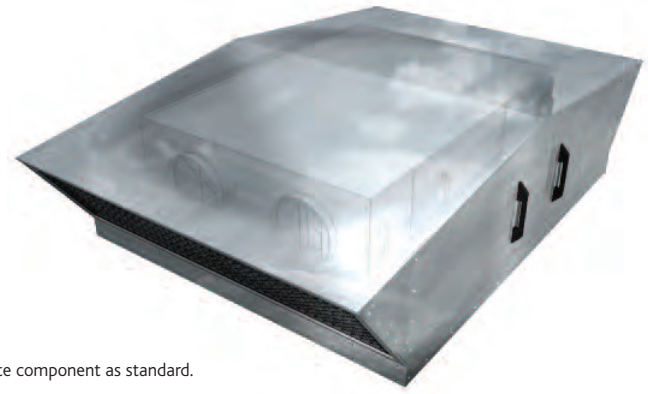
1 2 3 4

1. SXBH = Horizontal unit
   SXBV = Stacked unit
2. Size of XBOXER unit
3. LE = Left hand, electric
   RE = Right hand, electric
   LL = Left hand, LPHW
   RL = Right hand, LPHW
   LN = Left hand, no heater
   RN = Right hand, no heater
4. Weatherproof kit for on-site fitting

WEATHER PROTECTION FOR XBOXER HORIZONTAL UNIT

Sizes XB2 - 5 and XB6

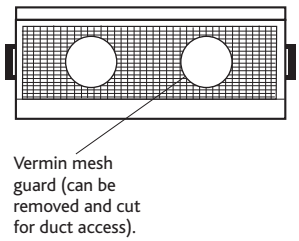
- Weatherproof construction
- Can be retro fitted on site (Please contact Nuaire)
- Complete with bird/vermin mesh and internal airflow divider
- Available in 2 sizes



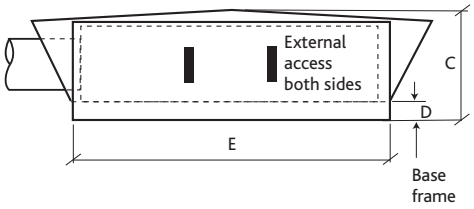
Note: The enclosure above is supplied as a separate component as standard.

DIMENSIONS (mm)

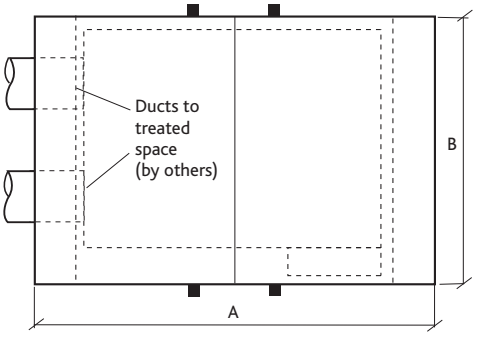
View from end



View from side



View from top



DIMENSIONS (mm)							
Unit Code	**Unit size**	**A**	**B**	**C**	**D**	**E**	**Weight (Kg)**
SXB-WP	2 - 5	2400	1400	530	100	1800	65
SXB6-WP	6	2400	1400	880	100	1800	79

Code example for on-site fitting

SXB - WP

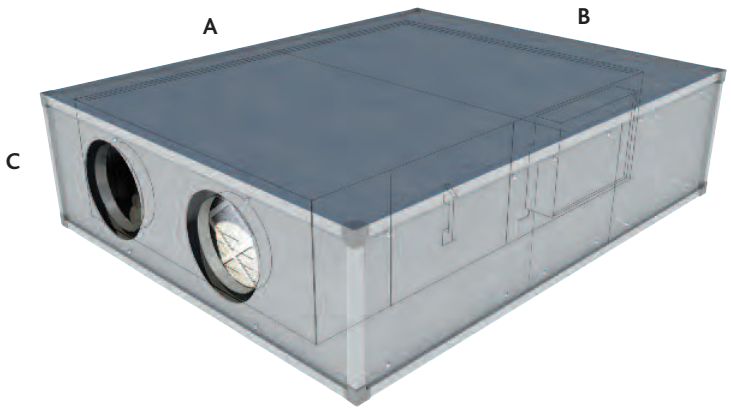
Code example for factory fitting

XB2 - LEWP

ACOUSTIC ENCLOSURE FOR XBOXER HORIZONTAL UNIT

Sizes XB2 - 5

The additional breakout reduction of a standard 25mm double skinned pentapost enclosure (close coupled to the unit inside) is as shown below.



BREAKOUT REDUCTION

	Frequency (Hz)						
	125	250	500	1K	2K	4K	8K
Sound reduction index Db	8	14	21	23	24	23	19

It is recommended the Acoustic Enclosure (see code example below) be ordered with the XBOXER unit and fitted at the factory.

Code example for factory fitting

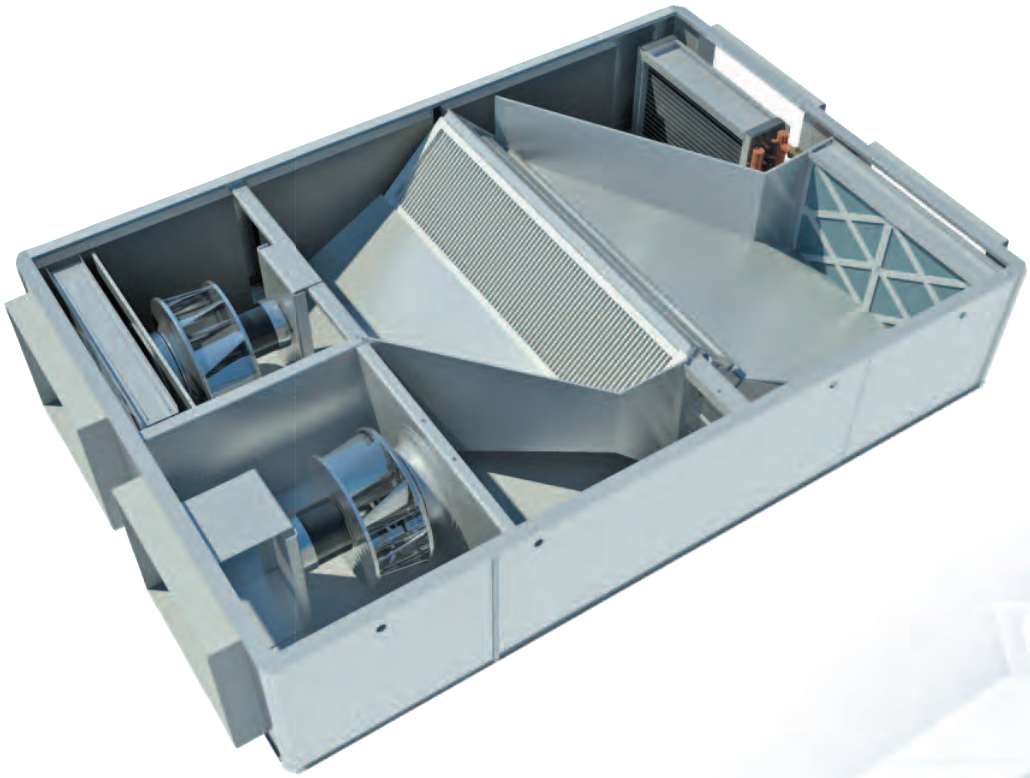
XB2 - RL - AE

DIMENSIONS (mm)

Unit Code	Unit size	A	B	C	Weight (Kg)
XB2-5	2 - 5	1800	1450	470	298

XB55 HEAT EXCHANGE UNITS

ENERGY EFFICIENT HEAT RECOVERY UNITS WITH SPECIALIST ACOUSTIC TREATMENT PROVIDING LOW NOISE LEVELS.



ecosmart OPTIONS AVAILABLE

BENEFITS

QUIETEST SOLUTION
Units are double skinned with specialist acoustic treatment keeping breakout noise to the lowest possible levels. Designed to meet BB101 & BB93.

ENERGY EFFICIENT CONTROLS
Full Ecosmart control compatibility provides a simple 'plug & go' control solution with BMS interface and trickle and boost as standard.

SPACE SAVING SOLUTION – LOW PROFILE
Installed horizontally where space is a premium, depth is 470mm.

GUARANTEED LOW COST VENTILATION & HEATING
Optional full re-circulation on start up ensures that the room is quickly and efficiently heated.

QUICK COMMISSIONING
Integrated supply and extract fan allows precise system duty can be quickly and accurately set. (Ecosmart models only.

NO CONTROL OPTION AVAILABLE
Allowing for controls by others for integration into a specific BMS system.

ANCILLARIES
A range of ancillaries are available including room mounted CO_2 temperature sensors, and matched silencers.
For further details please contact Nuaire.

EASY MAINTENANCE
Left or right hand options (in direction of airflow) – will provide full access to components.
For access requirements contact Nuaire.

INTEGRATED SUMMER BYPASS
Operates automatically via integrated factory set temperature sensors.

ADVANCED CONDENSATE REMOVAL
Miniature condensate pump option, for applications where the distance to discharge is great. Pump also enables a 'micro bore' type pipe to be used.

FILTER OPTIONS
G4 fitted as standard. Higher grade integrated filters available. Duct mounted ancillary also available.

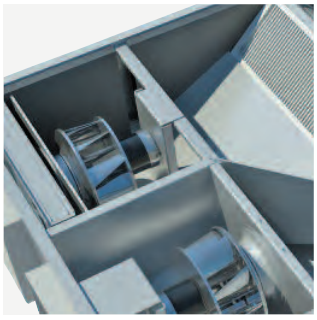
DX COIL OPTION AVAILABLE
Please contact Nuaire.

CONSTANT PRESSURE CONTROL AVAILABLE
For further details please contact Nuaire.

HEATING COIL OPTIONS
Unit supplied with integral electric , LPHW or cooling coil variations.

5 YEAR WARRANTY
On Ecosmart models for peace of mind.
No control models have a 2 year warranty.
Contact Nuaire for details.

FEATURES INCLUDE:



Integrated supply and extract fans.

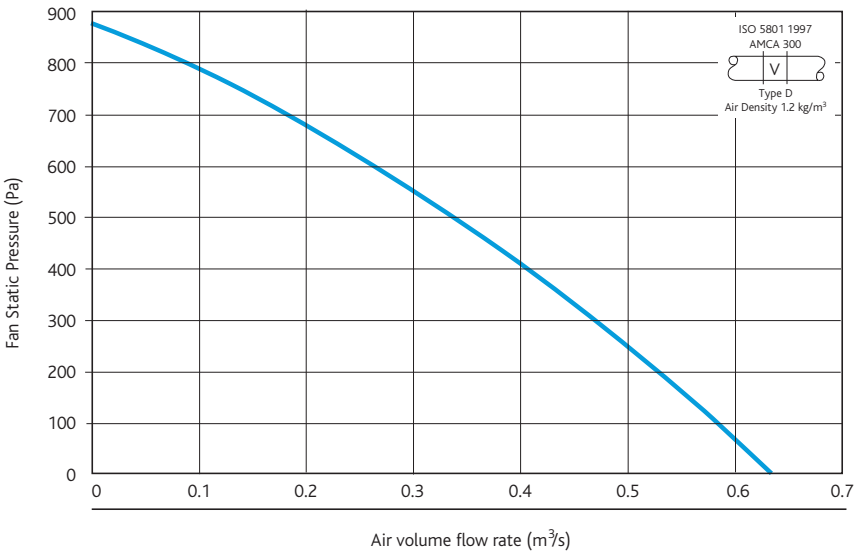
CO_2 Sensors: ES-CO2RM (for Ecosmart) and CO2RM (for non-Ecosmart).

Constant Pressure control option.

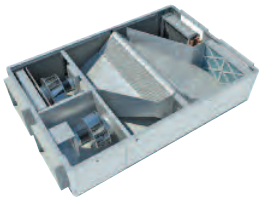
Filter option.

PERFORMANCE

XB55 Heat Recovery Unit



Casing



Code descriptions

XB55NC - L L 1

1 2 3 4 5 6

1. XBOXER
2. 55 = unit
3. Ecosmart as standard
   NC = No control
4. Component layout
   L = Left hand
   R = Right hand
   Handings in direction of supply air
5. Type of heater battery
   N = No heater
   L = LPHW
   E = Electric
6. 1 = 1 row coil

ELECTRICAL & SOUND

Product Code	Electrical data			Summary of sound power levels		Freq/ Hz 63	125	250	500	1K	2K	4K	8K	Free field hemisherical rad. dBA@3m
	FLC/ A	SC/ A	Input power/kW	Operation	Induct	Sound power levels								
XB55-****	6.9	6.9	1.1	Fresh air intake	Induct Inlet	83	81	81	73	66	60	60	61	
				Supply	Induct Outlet	83	77	74	65	59	55	47	36	
				Extract	Induct Inlet	80	74	75	64	63	57	47	37	
				Discharge	Induct Outlet	87	81	85	71	72	70	66	61	
				Breakout		71	65	60	49	45	42	40	26	38

Note: Air performance shown is for unit with "high duty" DX coil.

XB55 - COIL INFORMATION

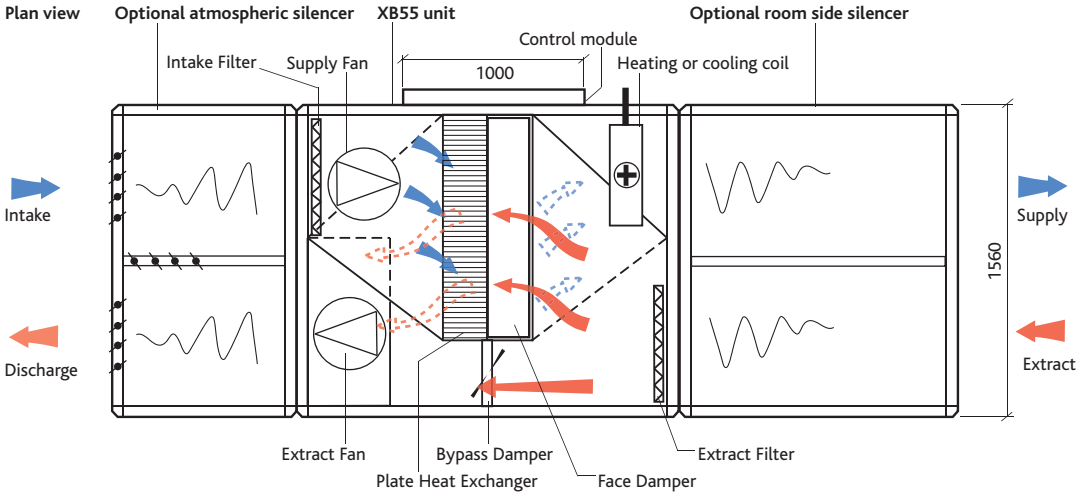
XB55 - L version

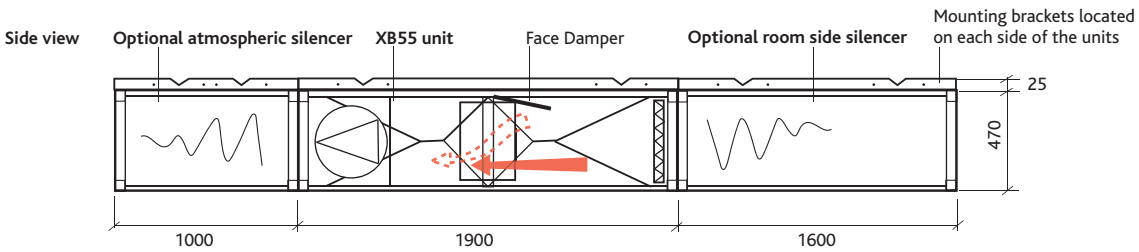
XB55 - L2 version

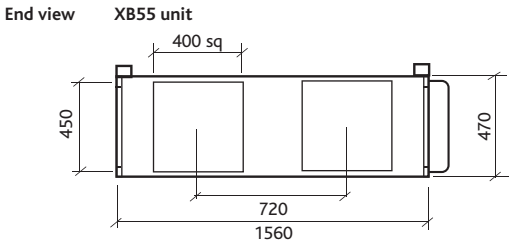
Air volume flow rate at 0.6m³/s								Air volume flow rate at 0.4m³/s								Air volume flow rate at 0.2m³/s								Connection size
Water in	Water out	Coil Ref	Air on	Air off	kW	Water flow l/s	Water dp KPA	Water in	Water out	Coil Ref	Air on	Air off	kW	Water flow l/s	Water dp KPA	Water in	Water out	Coil Ref	Air on	Air off	l/h kW	Water flow l/s	Water dp KPA	
82	71	L1	-3	18	17	0.37	19	82	71	L1	-3	23	13.5	0.30	13.5	82	71	L3	-3	31	13.8	0.31	20	
82	71	L1	3	23	15	0.34	16	82	71	L1	3	27	12	0.27	11	82	71	L3	3	52	12.6	0.28	17	
82	71	L1	9	27	13.8	0.31	13.5	82	71	L1	9	31	11	0.25	9	82	71	L3	9	54	11.4	0.25	14	
82	71	L1	15	32	12	0.28	11	82	71	L1	15	35	10	0.22	7.4	82	71	L3	15	56	10	0.23	12	15 mm
80	60	L2	-3	15	14	0.17	4.8	80	60	L2	-3	19	11.6	0.14	3.2	80	60	L4	-3	44	12.5	0.15	5.7	
80	60	L2	3	19	13	0.16	3.9	80	60	L2	3	23	10.5	0.13	2.6	80	60	L4	3	47	10	0.14	4.7	15 mm
80	60	L2	9	24	11.5	0.14	3.2	80	60	L2	9	27	9	0.11	2.1	80	60	L4	9	49	10	0.12	4	
80	60	L2	15	28	10	0.12	2.5	80	60	L2	15	31	8	0.10	1.7	80	60	L4	15	51	9	0.11	3	
60	40	L2	-3	9	9.6	0.12	2.3	60	40	L2	-3	12	7.8	0.09	1.6	60	40	L4	-3	30	8.8	0.11	3	
60	40	L2	3	14	8.2	0.10	1.8	60	40	L2	3	16	6.7	0.08	1.2	60	40	L4	3	33	7.7	0.09	2.4	15 mm
60	40	L2	9	18	7	0.08	1.3	60	40	L2	9	20	5.6	0.07	0.9	60	40	L4	9	35	6.6	0.08	1.83	
60	40	L2	15	22	5.6	0.07	0.9	60	40	L2	15	24	4.5	0.05	0.6	60	40	L4	15	37	5.5	0.07	1.3	

*Please note above tables are based on indicative selections. For more specific selection, contact Nuaire.

DIMENSIONS (MM) - XB55 UNIT, MATCHING ATMOSPHERIC & ROOM SIDE SILENCERS







Note: The drawings above include optional atmospheric and room side silencers for information purposes.

XB55 - SILENCER INFORMATION

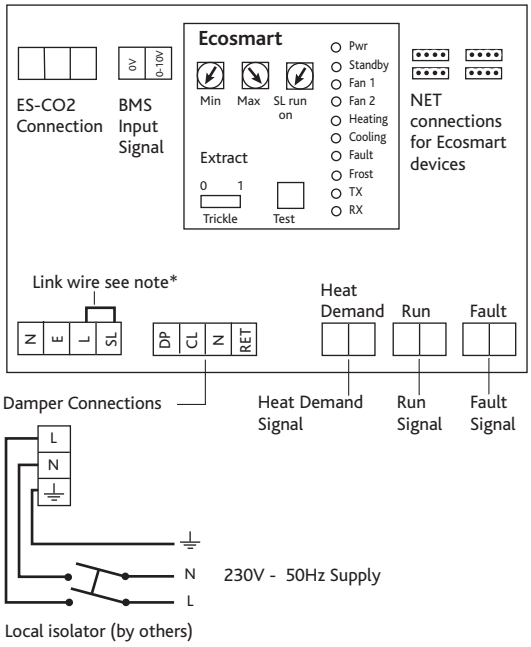
Silencer Type	Application		Frequency/Hz							
	Room Side	Atmospheric Side	63	125	250	500	1K	2K	4K	8K
			Attenuation/db							
Matched	Supply/Extract		7	14	17	18	21	19	19	20
Matched		Intake/Exhaust	5	9	11	12	11	11	11	16
Conventional	Supply/Extract		11	12	26	27	25	21	24	29
Conventional		Intake/Exhaust	8	12	20	29	32	30	29	23

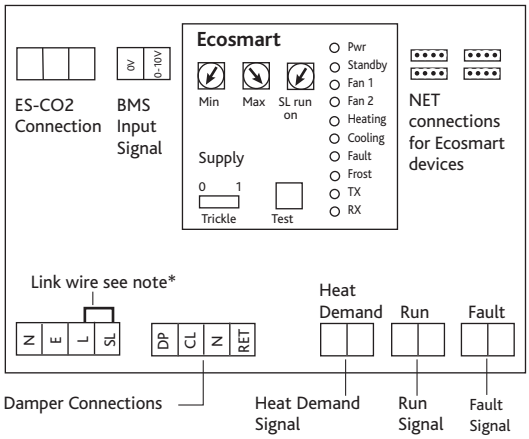
The resistance to airflow details provided are pressure drops for the individual duct connections to the unit.

Silencer Type	Application		Air Volume flow rate/cu.m/s					
	Room Side Fixed	Atmospheric Side Fixed	0.1	0.2	0.3	0.4	0.5	0.6
			Resistance to Airflow/Pa					
Matched		Intake	1	5	10	18	26	41
Matched	Supply		1	5	12	22	34	49
Matched	Extract		2	7	16	29	45	65
Matched		Exhaust	2	6	14	24	35	54
Conventional		Intake	4	17	39	69	108	156
Conventional	Supply		2	9	20	35	55	79
Conventional	Extract		5	10	49	88	128	167
Conventional		Exhaust	23	37	52	67	82	96

Note: The values quoted are based on test undertaken at NAL test facilities and show the influence of system effect on unit.
Note: Contact Nuaire for project specific silencer applications.
Note: All insertion losses are dynamic for a flow rate of 0.5cu.m/s.

XB55 WITH ECOSMART FAN ONLY CONTROL

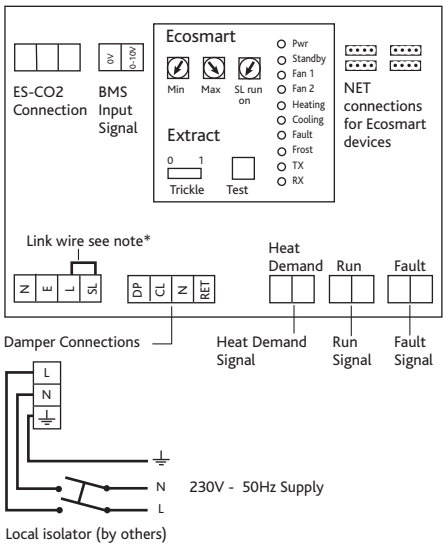


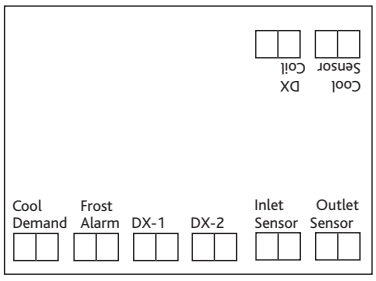


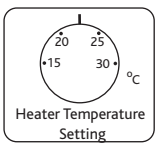
All inter-connections between circuit boards, blowers and sensors are made at the factory. This diagram only shows the essential field wiring points for clarity.

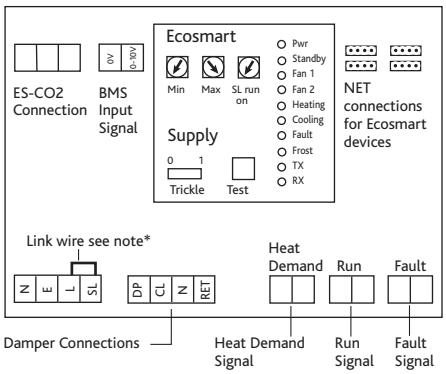
*Remove link wire if switched live signal, an enabler or BMS signal is connected.

XB55 WITH ECOSMART FAN AND LPHW COIL CONTROL





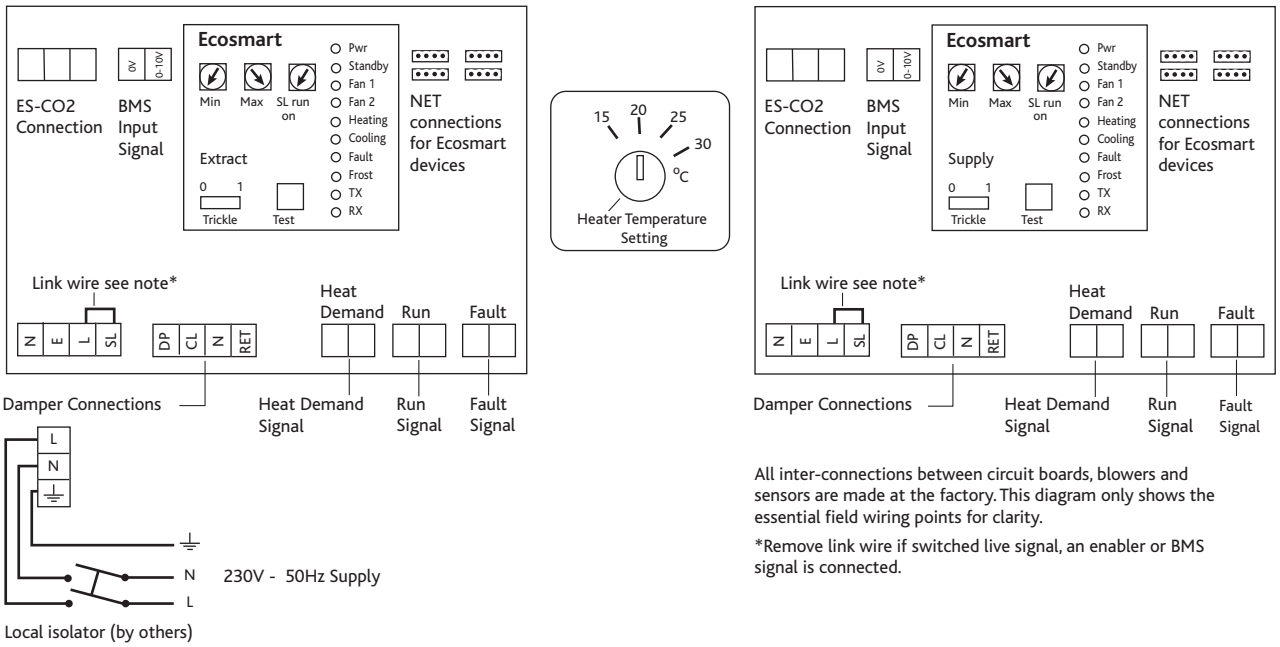




All inter-connections between circuit boards, blowers and sensors are made at the factory. This diagram only shows the essential field wiring points for clarity.

*Remove link wire if switched live signal, an enabler or BMS signal is connected.

XB55 WITH ECOSMART CONTROL AND ELECTRIC HEATER



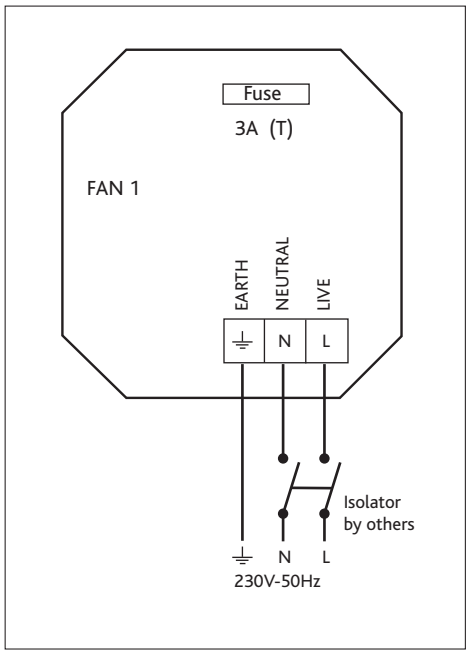
All inter-connections between circuit boards, blowers and sensors are made at the factory. This diagram only shows the essential field wiring points for clarity.

*Remove link wire if switched live signal, an enabler or BMS signal is connected.

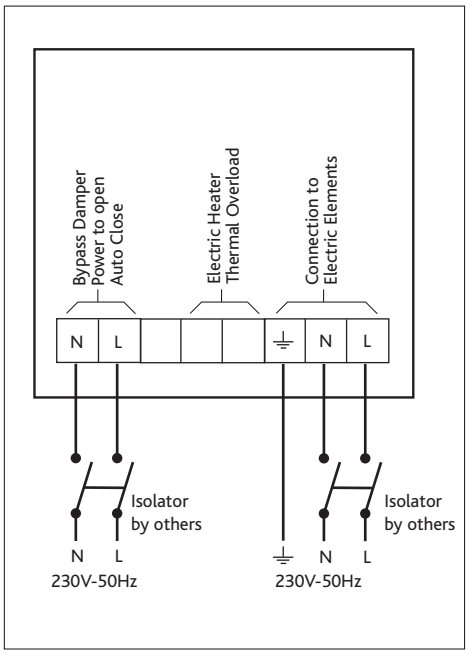
WIRING - FOR UNITS SUPPLIED WITHOUT ECOSMART CONTROL

The wiring illustrations below are for the fans, bypass damper and electric heater for units without control. All wiring is terminated in junction boxes fitted to the specified side of the unit.
It is the installer's responsibility to select and fit the appropriate control equipment to produce the desired output.
Note that any heating/cooling coils fitted are supplied without control valve and actuator.

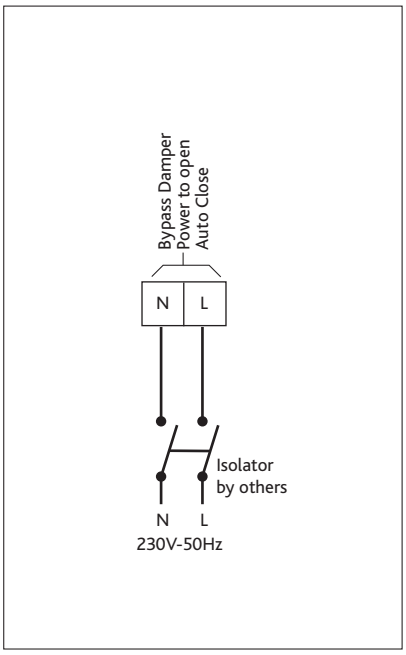
XB55 Fan wiring.
Two per unit i.e. one for each fan.



XB55 with electric heater, heat exchanger, bypass damper and electric heater wiring.



XB55 Fan only or with LPHW coil, heat exchanger bypass damper wiring.



CONSULTANTS SPECIFICATION

XB55

OPERATION

The supply and extract ventilation unit shall be as indicated on the drawings. The heat recovery ventilation unit shall ensure that the rooms design conditions are maintained by the effective and continuous control of the integrated heat exchanger matrix, heat exchanger bypass, and the heating/cooling coils.

The ventilation unit shall automatically vary the ventilation rate in the classroom dependant upon the signals received from the interconnected sensors. When signals are received, the fan shall vary its speed proportionally until the desired level is met.

The unit shall have the facility to commission the supply and extract fans individually via inbuilt minimum and maximum speed adjustment, the fans themselves shall have infinitely variable speed control.

The unit shall be the XB55-**** as manufactured by Nuaire.

UNIT SPECIFICATION

The heat recovery ventilation unit together with the room side silencer, atmospheric silencer with optional bolt on mixing box shall have a maximum depth of 470mm.

The ventilation unit and attenuators shall all be manufactured utilising the latest specialist acoustic treatment to ensure that the noise impact on the room occupants is minimal and in accordance with the specification. They shall be supplied complete with an integrated mounting system.

The unit shall have a high efficiency aluminium heat exchanger matrix with a thermal efficiency of up to 70%. The heat exchanger matrix shall be protected by G4 grade pleated filters on supply and extract; the filters shall be split to facilitate removal. The heat exchanger shall incorporate a full automatic bypass arrangement with actuator and pre-programmed control logic.

The unit shall have low energy, high efficiency EC fan/motor assemblies with sealed for life bearings with an anticipated working life of 70,000 hours (L10) and shall be suitable for single phase supply.

Impellers shall be high efficiency centrifugal type.

The heating/cooling coil shall be sized to meet the room specific requirements. The control for the coils shall be fully integrated and shall maintain a constant off coil temperature matched to meet the room's requirements.

The ventilation unit shall comprise the following:-
Supply and extract fans, high efficiency heat exchanger matrix, supply and extract filters, full automatic heat exchanger bypass, heating/cooling coil & condensate drip tray (an additional condensate drip tray is provided if a cooling coil is required).

Matching atmospheric & room side silencer can also be provided.
Atmospheric silencer can be provided with an optional mixing box arrangement.

The unit shall be constructed with removable panels allowing full maintenance access from both sides depending on specific handing (access handing to be confirmed and verified on site prior to order).

The removable panels shall provide access to the following:-
- Supply and extract fan.
- Supply & extract filter.
- Heater battery temperature adjustment (where included).
- Mixing box (where included)

ECOSMART CONTROL OPTION

provides the facility for energy saving via an intelligent stand-alone AHU function, or for convenient integration with the client BMS with minimal coordination requirement. The factory fitted control includes:- integral infinitely variable speed / duty control for the supply and extract fans, with independent minimum and maximum adjustment for accurate commissioning.

A run on timer and "background" ventilation function. The unit is provided as is unit status indication, run and fail relay and interface connection for Ecosmart sensors/enablers and system dampers.

The Ecosmart control module can additionally be pre-configured to provide the following integrated BMS interfaces.
- 0 - 10 volt contacts to provide a full BMS interface. This will enable the following functions:- Switch the unit ON/OFF. Variable speed / duty control Switch from low speed to high speed, enable heating/cooling
- 2 No. Volt free contacts to provide fan run and failure indication to provide system status.

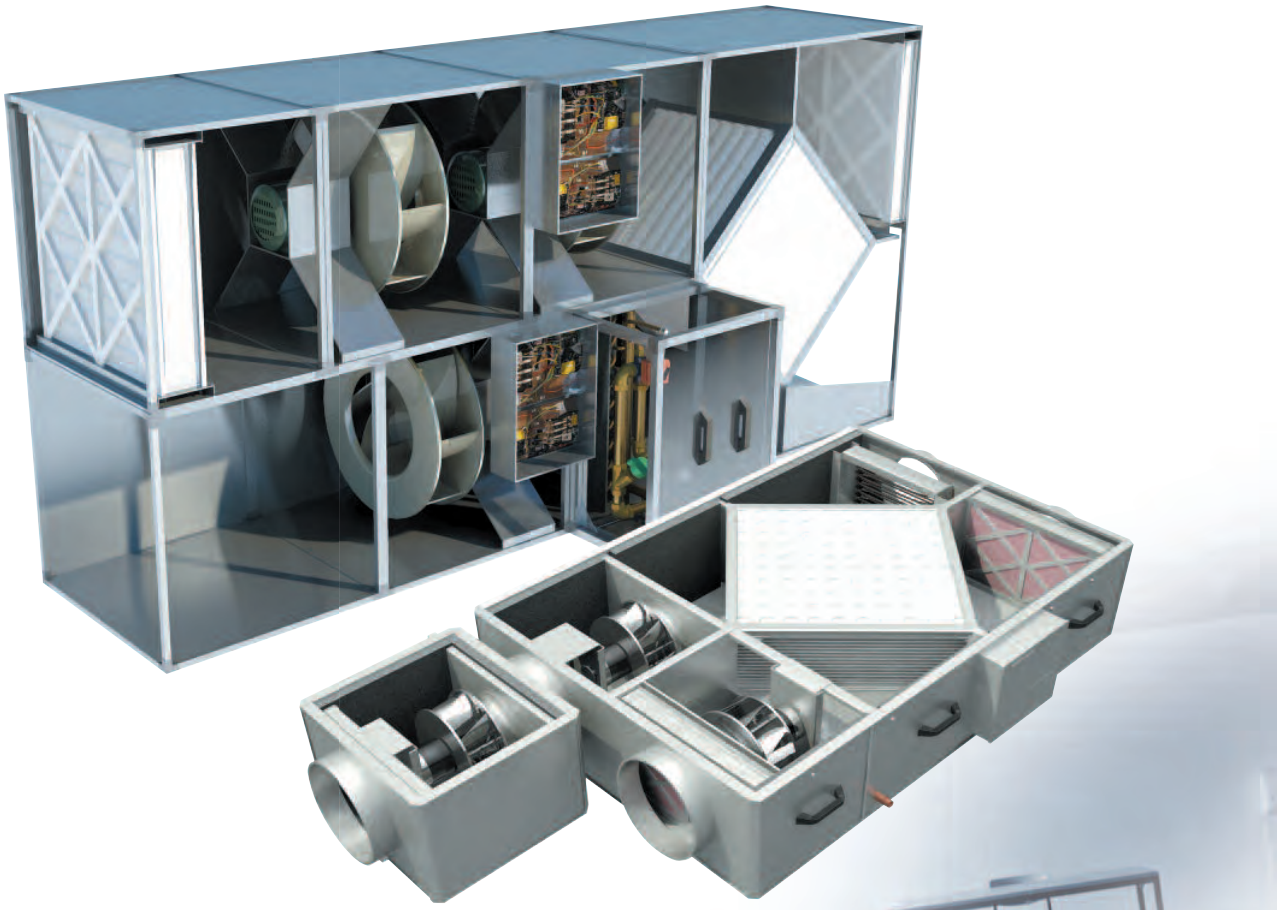
NO CONTROL OPTIONAL

Unit provides side access to direct supply and extract fan motor wiring (terminal boxes) for interface to custom built control panels. For this option, no sensors are fitted to the unit, but note that in the case of plate heat exchanger units, the bypass damper actuator is included, and for thermal wheel units, the wheel motor and drive unit is included.

The unit shall be the XB55-**** as manufactured by Nuaire.

XBOXER TWINFAN HEAT EXCHANGE UNITS

RUN AND STANDBY HEAT RECOVERY SOLUTION
WITH INTEGRATED CONTROLS.



ecosmart
OPTIONS AVAILABLE

BENEFITS

HIGH EFFICIENCY
Heat exchanger efficiency of up to 70%, alongside high efficiency motors and backward curved impellers.

ENERGY EFFICIENT CONTROLS
Full Ecosmart control compatibility provides a simple 'plug & go' control solution with BMS interface and trickle and boost as standard.

SPACE SAVING SOLUTION
Stacked option reduces over space requirements and the horizontal units depth from only 340mm deep.

QUIETEST SOLUTION
Units are double skinned keeping breakout noise to the lowest possible levels.

GUARANTEED VENTILATION
Ecosmart units with auto-change over and duty share.

WIDE RANGE
12 options available up to 1.7m³/s.

QUICK COMMISSIONING
Integrated supply and extract fan allows precise system duty can be quickly and accurately set.

EASY INSTALLATION
All XB twin fans are supplied in one piece plus 2nd extract fan. All XBV twin fans are supplied in 3 sections plus extract fan for delivery ready for site assembly.

EASY MAINTENANCE
Left or right hand options (in direction of airflow) – will provide full access to components - recommended clear space should be full width of vertically stacked units.

INTEGRATED SUMMER BYPASS
Operates automatically via integrated factory set temperature sensors.

WEATHERPROOF DETAIL
Can be factory or fitted on site, please refer to page 00 for details.

ADVANCED CONDENSATE REMOVAL
Miniature condensate pump option, for applications where the distance to discharge is great. Pump also enables a 'micro bore' type pipe to be used.

FILTER OPTIONS
G4 fitted as standard. Higher grade integrated filters available or as a duct mounted ancillary.

DX COIL OPTION
Please contact Nuaire.

HEATER BATTERY OPTIONS
Unit with integral battery, LPHW or electric.

ANCILLARIES
A range of ancillaries are available including manometers, bulkhead lights, view ports, drain trays & traps.
For further details please contact Nuaire.

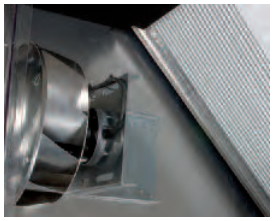
5 YEAR WARRANTY
For peace of mind.

FEATURES INCLUDE:

Removable side access.

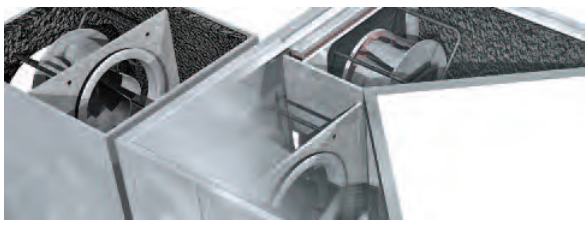
Condensate pump (optional).

Supply and extract commissioning.

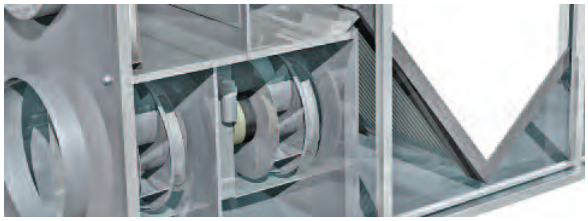


Bypass damper.

OPTIONS INCLUDE HORIZONTAL & STACKED UNITS:



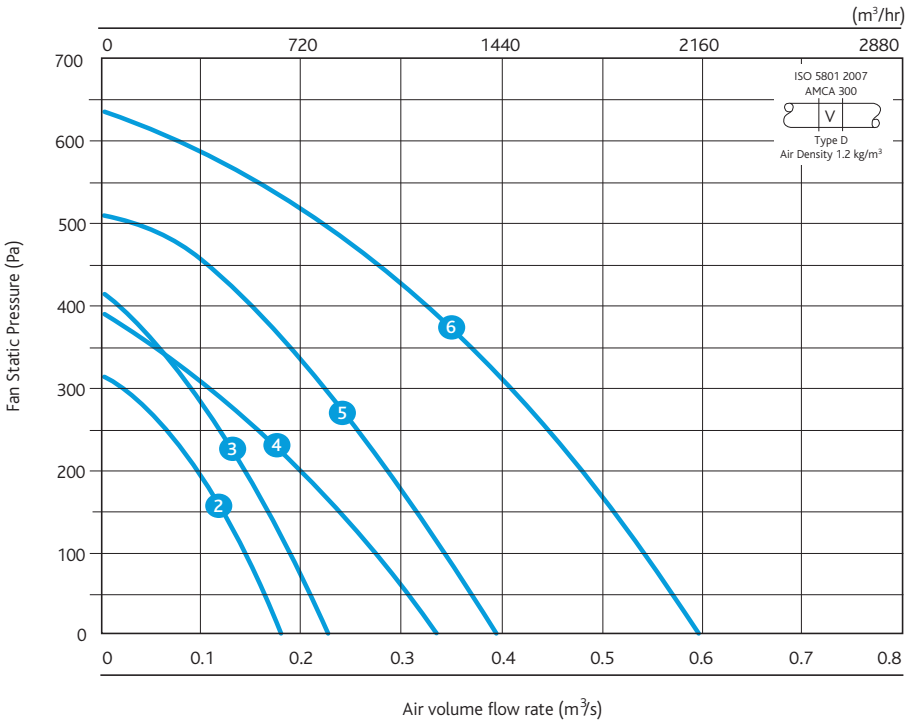
Horizontal unit.



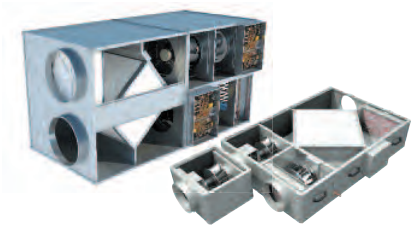
Stacked unit.

PERFORMANCE - XBOXER HEAT EXCHANGE TWINFANS

XBOXER SIZES: S2T-S6T-XBV stacked, XB2-5T and S6T-XB horizontal twinfans



Casing



Code descriptions

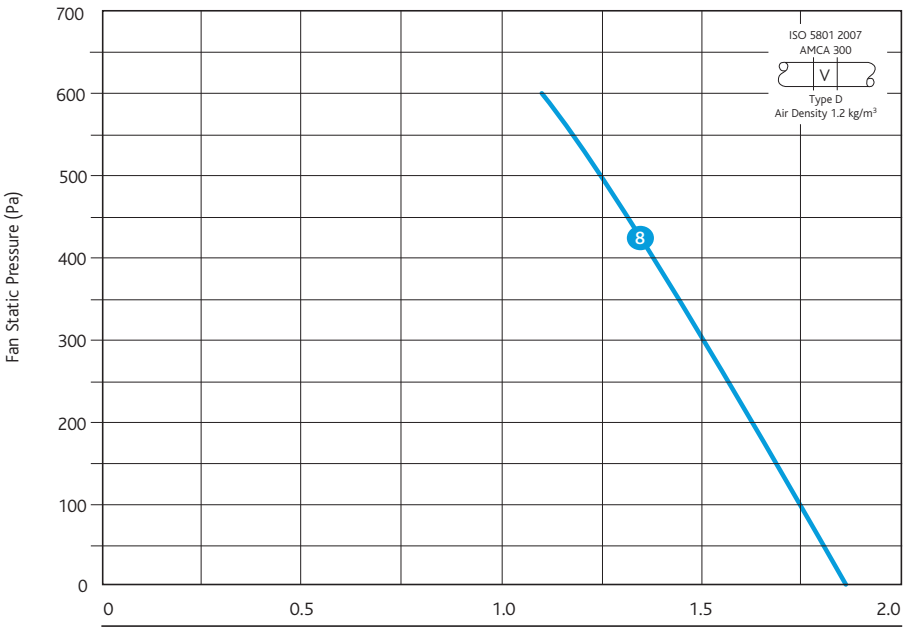
XB2T - R N 3

1 2 3 4 5 6

1. Xboxer (XB2-5T or S6T)
2. Curve Ref.
3. Twinfan
4. Component layout
   L = Left hand
   R = Right hand
   Handings in direction of supply air
5. Type of heater battery fitted
   N = No heater
   L = LPHW
   E = Electric
6. 1 = 1 row coil or 2 = 2 row coil

*Please refer to page 74 for coils

XBOXER S8T-XBV stacked and S8T-XBH horizontal twinfans



Casing

Code descriptions

S8T - XBH - R N 3

1 2 3 4 5 6

1. Curve Ref.
2. Twinfan
3. XBV = vertical unit or XBH = horizontal unit
4. Component layout
   L = Left hand
   R = Right hand
   Handings in direction of supply air
5. Type of heater battery fitted
   N = No heater
   L = LPHW
   E = Electric
6. 1 = 1 row coil or 2 = 2 row coil

*Please refer to page 74 for coils

PERFORMANCE - XBOXER HEAT EXCHANGE TWINFANS - STACKED XBV AND HORIZONTAL XB & XBH

ELECTRICAL, SOUND & WEIGHT

Curve	Code	Phase	Motor power watts	Start current (amps)	Full load current (amps)	Electric Heater (kW)	Heater FLC (amps)	LPHW Heater (kW)		Induct Sound Power Levels dB re 1pW 63	125	250	500	1K	2K	4K	8K	Breakout dBA @3m	Weight (Kg)
2	XB2T-**	1	270	1.7	1.7	4.5	18.7	*	Intake	69	69	67	68	63	59	58	54	36	187
	S2T-XBV-**								Supply	67	65	63	57	55	58	44	33		220
									Discharge	67	70	65	67	61	55	55	51		
									Extract	59	60	58	52	48	47	42	34		
3	XB3T-**	1	410	1.9	1.9	4.5	18.7	*	Intake	73	73	71	72	67	63	62	58	38	187
	S3T-XBV-**								Supply	71	69	67	61	59	62	48	37		220
									Discharge	71	74	69	71	65	59	59	55		
									Extract	63	64	62	56	52	51	46	38		
4	XB4T-**	1	423	2.8	2.8	4.5	18.7	*	Intake	74	73	69	72	70	65	63	58	39	187
	S4T-XBV-**								Supply	67	63	62	57	57	57	50	41		220
									Discharge	74	73	70	72	71	64	62	58		
									Extract	66	61	60	55	55	55	50	39		
5	XB5T-**	1	690	3.6	3.6	4.5	18.7	*	Intake	78	77	73	76	74	69	67	62	43	187
	S5T-XBV-**								Supply	71	67	66	61	61	61	54	45		220
									Discharge	78	77	74	76	75	68	66	62		
									Extract	70	65	64	59	59	59	54	43		
6	S6T-XB-**	1	850	6	6	6	25	*	Intake	82	86	80	68	67	64	57	51	47	230
									Supply	76	79	76	67	62	59	50	40		
									Discharge	85	86	80	74	72	68	61	54		
									Extract	77	80	73	64	59	55	47	44		
6	S6T-XBV-**	1	980	6	6	6	25	*	Intake	76	79	76	67	62	59	50	40	39	322
		3				12	16.7		Supply	82	86	80	68	67	64	57	51		
									Discharge	77	80	73	64	59	55	47	44		
									Extract	85	86	80	74	72	68	61	54		
8	S8T-XBH-**	3	4.35 kW	9	9	54	75	*	Intake	79	83	80	78	72	73	73	59	50	790
	S8T-XBV-**								Supply	85	88	87	88	82	83	83	69	50	858
									Discharge	80	77	77	83	76	75	75	56		
									Extract	84	90	90	83	78	81	81	72		

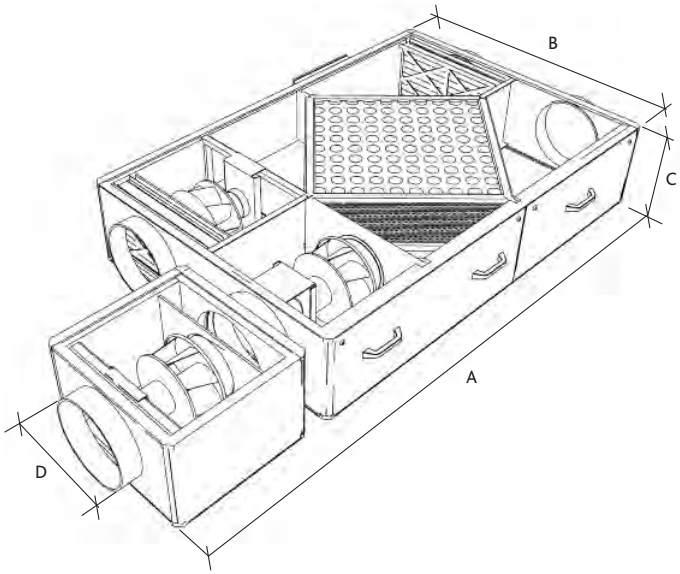
Units are supplied c/w with 2 No.G4 filters as standard. F5 & F7 filters are available as integrated options on supply.
Motor power and current loads are the total for both fans running together. Unit has a soft start function therefore the starting current is identical to the full load.
** Add relevant code for handing and heater type.
* For details on coils, codes and selection please refer to page 74.
Note: Size 6 - 1 phase = supply for fan, 3 phase = supply for electric heater battery.

DIMENSIONS AND CONFIGURATIONS

XBOXER Horizontal twinfan sizes XB2-5T

DIMENSIONS (mm)

Code	A	B	C	D	Weight (kg)
XB2T	2300	1150	350	315	187
XB3T	2300	1150	350	315	187
XB4T	2300	1150	350	315	187
XB5T	2300	1150	350	315	187

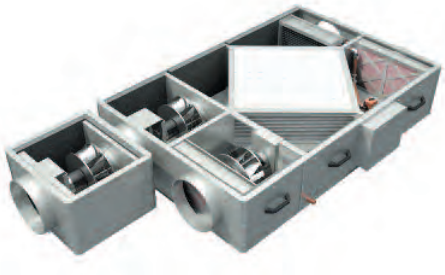


Model shown: XB2-5T-LN (left hand with no heater).

Model shown: XB2-5T-LE (left hand with electric heater).

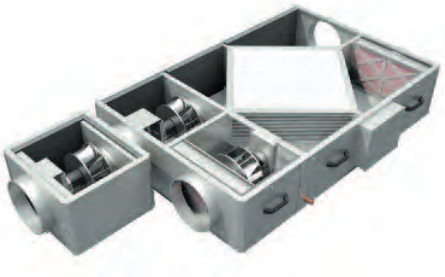
Model shown: XB2-5T-RE (right hand with electric heater).

Model shown: XB2-5T-LL (left hand with LPHW).



Model shown: XB2-5T-RL (right hand with LPHW).

Model shown: XB2-5T-LN (left hand with no heater).



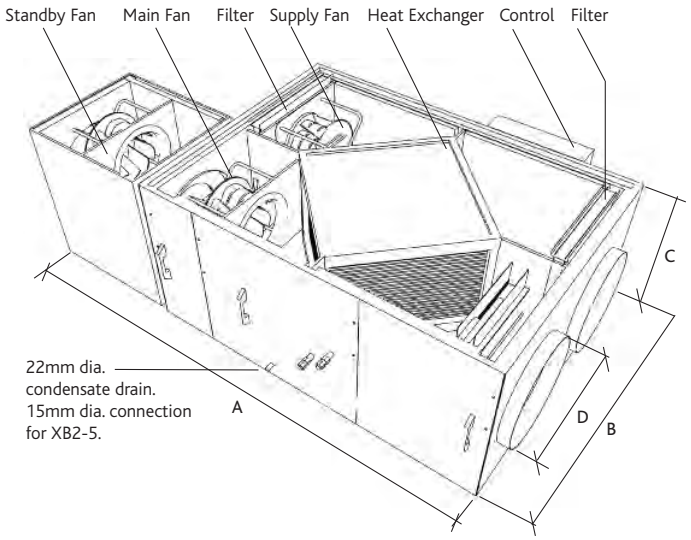
Model shown: XB2-5T-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

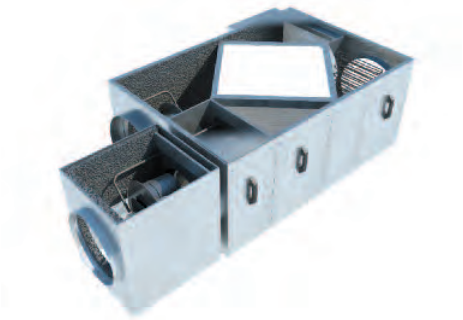
XBOXER Horizontal twinfan size S6T-XB

DIMENSIONS (mm)

Code	A	B	C	D	Weight (kg)
S6T-XB	2300	1150	700	500	230



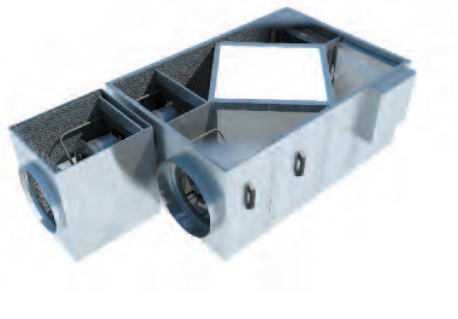
Model shown: S6T-XB-LL (left hand with LPHW).



Model shown: S6T-XB-LE (left hand with electric heater).

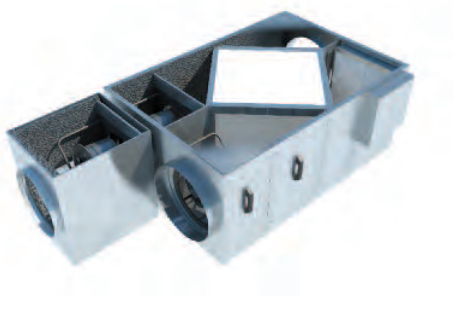
Model shown: S6T-XB-RE (right hand with electric heater).

Model shown: S6T-XB-LL (left hand with LPHW).



Model shown: S6T-XB-RL (right hand with LPHW).

Model shown: S6T-XB-LN (left hand with no heater).



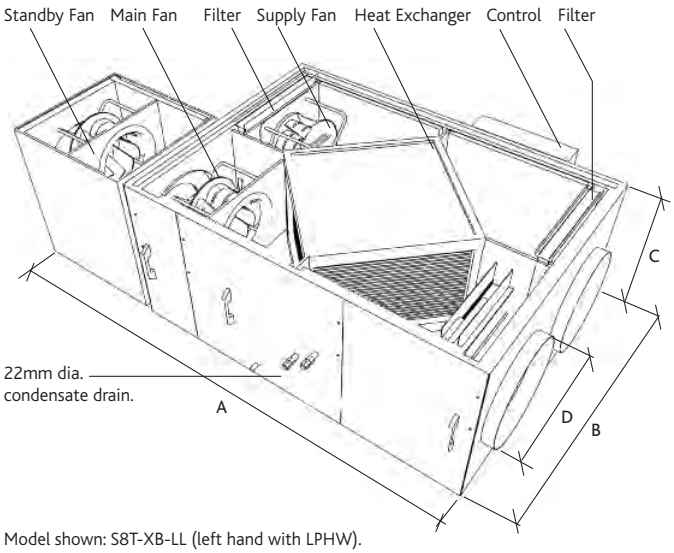
Model shown: S6T-XB-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

XBOXER Horizontal twinfans size S8T-XB

DIMENSIONS (mm)

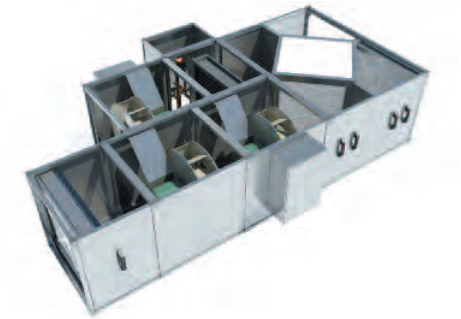
Code	A	B	C	D	Weight (kg)
S8T-XBH	4800	2000	1000	1000	790



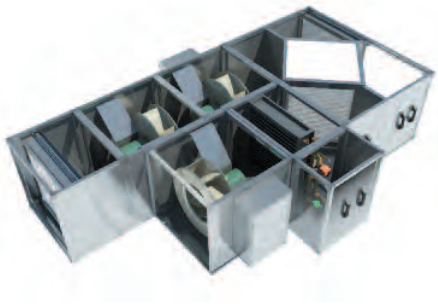
Model shown: S8T-XB-LL (left hand with LPHW).

Model shown: S8T-XBH-LE (left hand with electric heater).

Model shown: S8T-XBH-RE (right hand with electric heater).

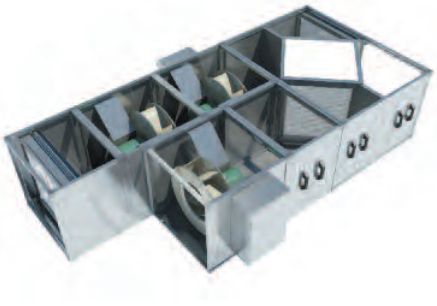


Model shown: S8T-XBH-LL (left hand with LPHW).



Model shown: S8T-XBH-RL (right hand with LPHW).

Model shown: S8T-XBH-LN (left hand with no heater).



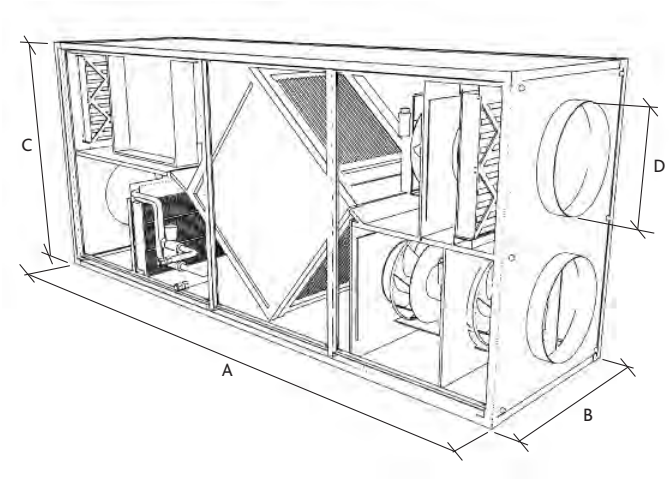
Model shown: S8T-XBH-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

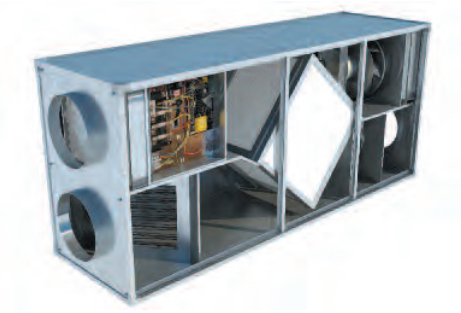
XBOXER Stacked twinfans sizes 2, 3, 4 and S5T-XBV

DIMENSIONS (mm)

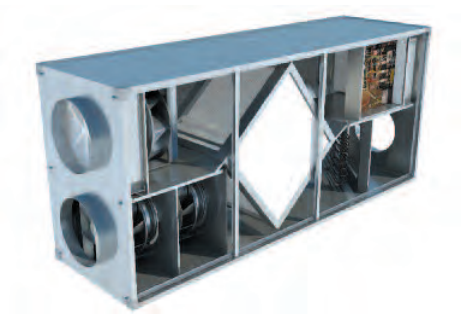
Code	A	B	C	D	Weight (kg)
S2T-XBV	2500	550	820	250	220
S3T-XBV	2500	550	820	250	220
S4T-XBV	2500	550	820	250	220
S5T-XBV	2500	550	820	250	220



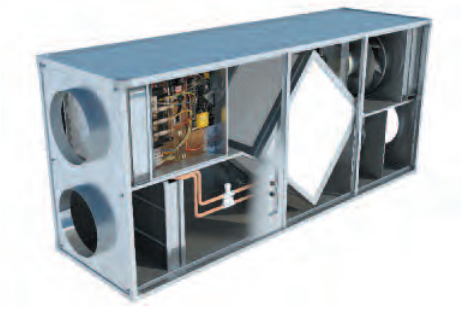
Model shown: S2T-XBV-LL (left hand with LPHW).



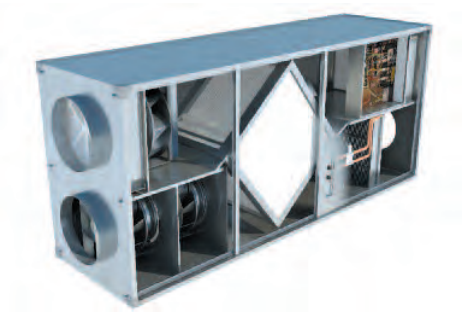
Model shown: S2-5T-XBV-LE (left hand with electric heater).



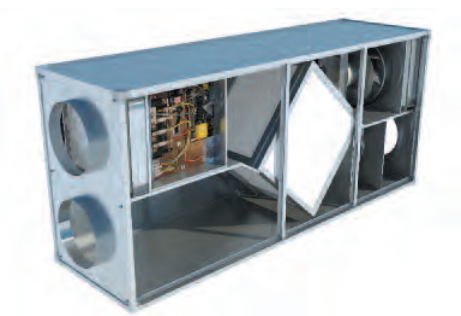
Model shown: S2-5T-XBV-RE (right hand with electric heater).



Model shown: S2-5T-XBV-LL (left hand with LPHW).



Model shown: S2-5T-XBV-RL (right hand with LPHW).



Model shown: S2-5T-XBV-LN (left hand with no heater).

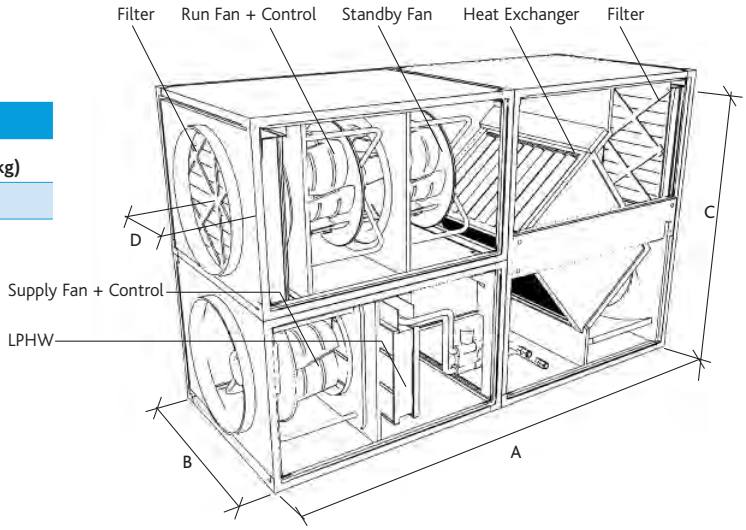
Model shown: S2-5T-XBV-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

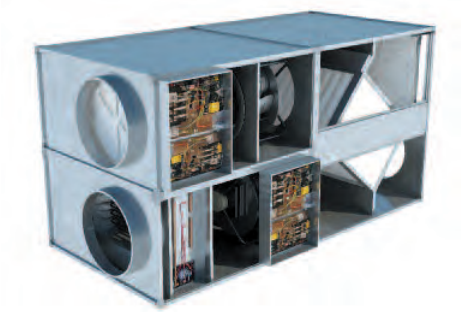
XBOXER Stacked twinfans size S6T-XBV

DIMENSIONS (mm)

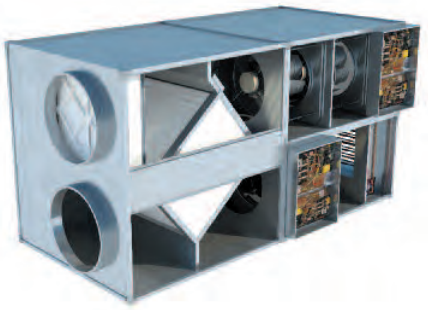
Code	A	B	C	D	Weight (kg)
S6T-XBV	2000	954	1060	342	322



Model shown: S6T-XBV-LL (left hand with LPHW).

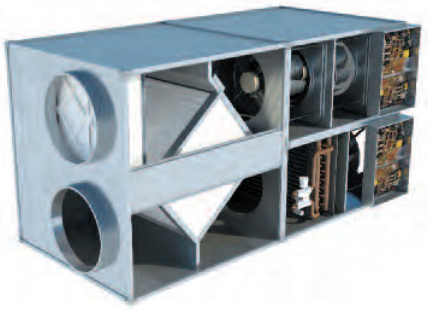


Model shown: S2-5T-XBV-LE (left hand with electric heater).

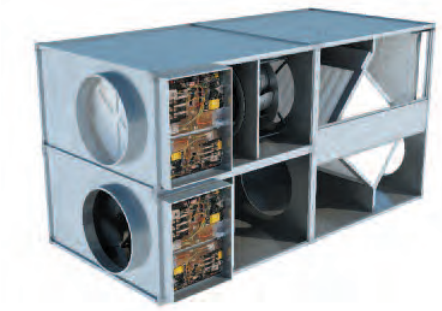


Model shown: S2-5T-XBV-RE (right hand with electric heater).

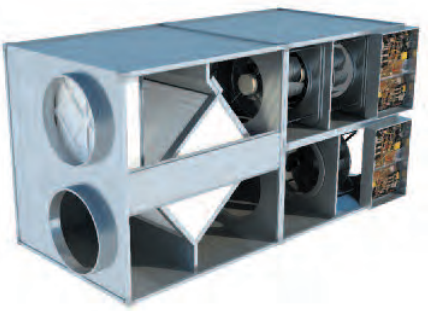
Model shown: S2-5T-XBV-LL (left hand with LPHW).



Model shown: S2-5T-XBV-RL (right hand with LPHW).



Model shown: S2-5T-XBV-LN (left hand with no heater).



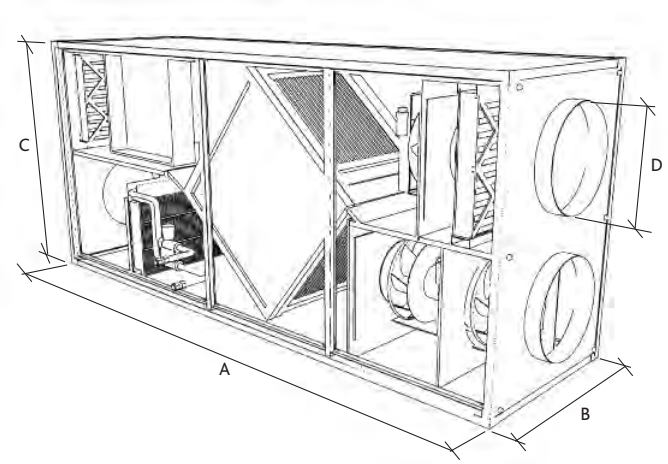
Model shown: S2-5T-XBV-RN (right hand with no heater).

DIMENSIONS AND CONFIGURATIONS

XBOXER Stacked twinfans size S8T-XBV

DIMENSIONS (mm)

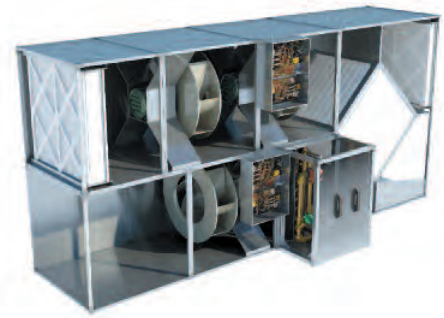
Code	A	B	C	D	Weight (kg)
S8T-XBV	4800	1000	2000	1000	858



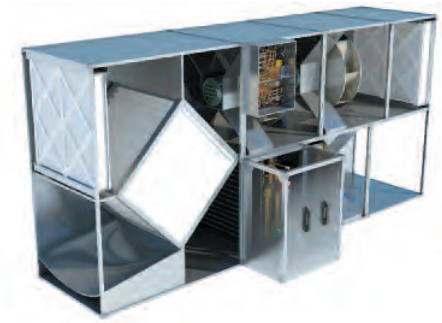
Model shown: S8T-XBV-LL (left hand with LPHW).

Model shown: S8T-XBV-LE (left hand with electric heater).

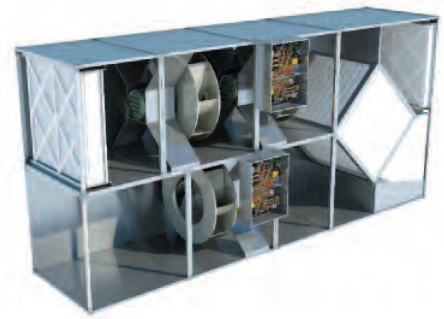
Model shown: S8T-XBV-RE (right hand with electric heater).



Model shown: S8T-XBV-LL (left hand with LPHW).



Model shown: S8T-XBV-RL (right hand with LPHW).



Model shown: S8T-XBV-LN (left hand with no heater).

Model shown: S8T-XBV-RN (right hand with no heater).

XBOXER Size 1, 2, 3, 4 and 5 — 1 ROW

Air Volume Flow rate (m^3/s)

Water on/off C	Air On C	0.4 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.4 Water dp (kPa)	0.3 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.3 Water dp (kPa)	0.2 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.2 Water dp (kPa)	0.1 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.1 Water dp (kPa)	Connection size
82/71	-3	6.3	10	0.14	6.9	5.5	12	0.122	5.2	4.3	15	0.095	3.3	2.5	18	0.056	1.1	
	3	5.6	15	0.126	5.6	5.1	17	0.113	4.5	4	19	0.088	2.83	2.3	22	0.052	0.95	
	9	5	19	0.115	4.7	4.7	22	0.104	3.9	3.7	24	0.082	2.46	2.2	27	0.048	0.81	15 mm
	15	4.6	24	0.104	3.9	4.2	26	0.095	3.3	3.4	29	0.075	2.06	2	31	0.044	0.68	
80/60	-3	6.1	9.7	0.075	1.98	4.8	10	0.058	1.18	3.6	12	0.044	0.71	2.15	15	0.026	0.24	
	3	4.7	13	0.058	1.18	4.3	15	0.052	0.94	3.3	17	0.041	0.61	2	19	0.024	0.20	
	9	4.2	18	0.052	0.95	3.8	19	0.047	0.77	3	21	0.037	0.50	1.8	24	0.022	0.17	
	15	3.7	23	0.046	0.74	3.4	24	0.042	0.62	2.7	26	0.033	0.40	1.6	28	0.019	0.13	15 mm
60/40	-3	4.4	6.2	0.054	1.03	4	8	0.048	0.80	3.1	10	0.037	0.50	1.6	10	0.019	0.13	
	3	2.9	9	0.035	0.43	2.6	10	0.032	0.36	2	11	0.025	0.23	1.1	12	0.014	0.07	
	9	2.4	14	0.029	0.30	2.2	15	0.026	0.24	1.7	16	0.02	0.15	1	17	0.013	0.06	
	15	1.9	19	0.023	0.19	1.7	20	0.021	0.15	1.3	20	0.016	0.09	0.9	22	0.012	0.05	15 mm

XBOXER Size 1, 2, 3, 4 and 5 — 2 ROW

Air Volume Flow rate (m^3/s)

Water on/off C	Air On C	0.4 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.4 Water dp (kPa)	0.3 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.3 Water dp (kPa)	0.2 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.2 Water dp (kPa)	0.1 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.1 Water dp (kPa)	Connection size
82/71	-3	14	26	0.32	14.5	12.5	31	0.278	11.5	9.5	36	0.212	7.1	5.4	41	0.121	2.74	
	3	13	30	0.292	12.5	11,5	35	0.257	10	8.8	39	0.196	6.3	5	44	0.112	2.40	
	9	12	33	0.267	10.7	10.5	38	0.236	8.6	8	42	0.18	5.4	4.6	47	0.103	2.08	15 mm
	15	10.8	37	0.242	9	9.6	41	0.214	7.3	7.4	45	0.16	4.6	4.2	50	0.094	1.78	
80/60	-3	12	22	0.149	3.9	10.7	26	0.13	3.2	8	30	0.1	1.98	4.7	35	0.057	0.76	
	3	11	26	0.135	3.3	9.7	30	0.119	2.72	7.5	33	0.091	1.69	4.3	38	0.052	0.65	
	9	9.9	29	0.12	2.74	8.8	33	0.107	2.27	6.7	36	0.082	1.41	3.9	41	0.047	0.55	
	15	8.8	33	0.11	2.36	7.8	36	0.095	1.85	6	39	0.073	1.16	3.5	43	0.042	0.45	15 mm
60/40	-3	8	13	0.097	1.91	7	16	0.085	1.53	5.3	19	0.065	0.95	3	21	0.036	0.35	
	3	6.9	17	0.083	1.46	6	20	0.073	1.18	4.6	22	0.056	0.74	2.5	24	0.031	0.27	
	9	5.7	21	0.069	1.07	5	23	0.061	0.87	3.8	24	0.046	0.53	2	26	0.025	0.19	
	15	4.5	24	0.054	0.70	4	26	0.048	0.58	3	27	0.036	0.35	1.8	28	0.023	0.16	15 mm

XBOXER Size 6 — 1 ROW

Air Volume Flow rate (m^3/s)

Water on/off C	Air On C	0.6 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.6 Water dp (kPa)	0.4 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.4 Water dp (kPa)	0.2 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.2 Water dp (kPa)	Connection size
82/71	-3	11	12	0.244	5.2	8.6	15	0.19	3.3	5	18	0.112	1.1	
	3	10.2	17	0.226	4.5	8	19	0.176	2.83	4.6	22	0.104	0.95	
	9	9.4	22	0.208	3.9	7.4	24	0.164	2.46	4.4	27	0.096	0.81	
	15	8.4	26	0.19	3.3	6.8	29	0.15	2.06	4	31	0.088	0.68	15 mm
80/60	-3	9.6	10	0.116	1.18	7.2	12	0.088	0.71	4.3	15	0.052	0.24	
	3	8.6	15	0.104	0.94	6.6	17	0.082	0.61	4	19	0.048	0.20	
	9	7.6	19	0.094	0.77	6	21	0.074	0.50	3.6	24	0.044	0.17	
	15	6.8	24	0.084	0.62	5.4	26	0.066	0.40	3.2	28	0.038	0.13	15 mm
60/40	-3	8	8	0.096	0.80	6.2	10	0.074	0.50	3.2	10	0.038	0.13	
	3	5.2	10	0.064	0.36	4	11	0.05	0.23	2.2	12	0.028	0.07	
	9	4.4	15	0.052	0.24	3.4	16	0.04	0.15	2	17	0.026	0.06	
	15	3.4	20	0.042	0.15	2.6	20	0.032	0.09	1.8	22	0.024	0.05	15 mm

XBOXER Size 6 — 2 ROW

Air Volume Flow rate (m^3/s)

Water on/off C	Air On C	0.6 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.6 Water dp (kPa)	0.4 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.4 Water dp (kPa)	0.2 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.2 Water dp (kPa)	Connection size
82/71	-3	25	31	0.556	11.5	19	36	0.424	7.1	10.8	41	0.242	2.74	
	3	11.5	35	0.514	10	17.6	39	0.392	6.3	10	44	0.224	2.40	
	9	21	38	0.472	8.6	16	42	0.36	5.4	9.2	47	0.206	2.08	
	15	19.2	41	0.428	7.3	14.8	45	0.32	4.6	8.4	50	0.188	1.78	15 mm
80/60	-3	21.4	26	0.26	3.2	16	30	0.2	1.98	9.4	35	0.114	0.76	
	3	19.4	30	0.238	2.72	15	33	0.182	1.69	8.6	38	0.104	0.65	
	9	17.6	33	0.214	2.27	13.4	36	0.164	1.41	7.8	41	0.094	0.55	
	15	15.6	36	0.19	1.85	12	39	0.146	1.16	7	43	0.084	0.45	15 mm
60/40	-3	14	16	0.17	1.53	10.6	19	0.13	0.95	6	21	0.072	0.35	
	3	12	20	0.146	1.18	9.2	22	0.112	0.74	5	24	0.062	0.27	
	9	10	23	0.122	0.87	7.6	24	0.092	0.53	4	26	0.05	0.19	
	15	8	26	0.096	0.58	6	27	0.072	0.35	3.6	28	0.046	0.16	15 mm

XBOXER Size 6H 6V — 2 ROW

Air Volume Flow rate (m^3/s)

Water on/off C	Air On C	0.7 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.7 Water dp (kPa)	0.5 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.5 Water dp (kPa)	0.3 Heat Output (kW)	Air Off C	Water flow rate (l/s)	0.3 Water dp (kPa)	Connection size
82/71	-3	28	30.5	0.633	3	24	37	0.54	2.2	18	48	0.41	1.37	
	3	26	33	0.58	2.59	22	40	0.5	1.93	17	48.5	0.39	1.26	
	9	24	37	0.53	2.22	20	42	0.46	1.68	15	50	0.35	1.05	
	15	21	40	0.47	1.81	18	45	0.41	1.38	14	53	0.31	0.85	28 mm
80/60	-3	23	21	0.28	0.75	20	27	0.24	0.55	15	36	0.19	0.37	
	3	20	25	0.25	0.62	17	30	0.22	0.48	14	38	0.17	0.31	
	9	17	29	0.22	0.50	15	33	0.19	0.37	12	40	0.14	0.22	
	15	15	32	0.18	0.35	13	36	0.16	0.28	10	42	0.12	0.17	28 mm
60/40	-3	13	11	0.15	0.26	11	14	0.13	0.20	8	18	0.1	0.12	
	3	10	14	0.12	0.18	8	16	0.1	0.13	6	17	0.07	0.07	
	9	6	16	0.07	0.07	5	17	0.06	0.05					
	5	5	21	0.07	0.07									28 mm

*Please note: above tables are based on indicative selections. For more specific selection, contact Nuaire.

XBOXER Size 7

2 ROW

Air Volume Flow rate (m^3/s)

Water on/off C	Air On C	Heat Output (kW)	Air Off C	1.7 Water flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off C	1.3 Water flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off C	1 Water flow rate (l/s)	Water dp (kPa)	Connection size
82/71	-3	60	26	1.32	11	54	31	1.2	9.4	46	35	1	7.4	35 mm
	3	55	29	1.22	9.6	50	35	1.1	8.3	43	38	0.96	6.6	
	9	50	33	1.1	8.2	46	38	1	7.2	40	41	0.88	5.8	
	15	45	37	0.97	7	41	41	0.92	6.2	36	44	0.8	5	
80/60	-3	50	21	0.61	3.4	45	26	0.56	2.9	39	29	0.48	2.33	35 mm
	3	45	25	0.55	2.83	41	29	0.5	2.42	36	32	0.44	2.07	
	9	40	28	0.49	2.37	37	32	0.45	2.06	32	35	0.39	1.72	
	15	35	32	0.43	1.93	33	36	0.4	1.71	28	38	0.35	1.45	
60/40	-3	32	12	0.39	1.66	29	15	0.35	1.39	25	17	0.3	1.14	35 mm
	3	27	16	0.33	1.28	25	19	0.3	1.10	21	20	0.26	0.92	
	9	22	20	0.27	0.94	20	22	0.24	0.78	17	23	0.21	0.66	
	15	17	23	0.2	0.59	15	24	0.19	0.54	14	26	0.16	0.43	

XBOXER Size 8

2 ROW

Air Volume Flow rate (m^3/s)

Water on/off C	Air On C	Heat Output (kW)	Air Off C	2.1 Water flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off C	1.8 Water flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off C	1.4 Water flow rate (l/s)	Water dp (kPa)	Connection size
82/71	-3	94	34	2.1	12.9	86	36	1.9	11	72	39	1.6	8.2	50 mm
	3	87	37	1.9	11.3	79	39	1.77	9.7	67	42	1.48	7.3	
	9	80	40	1.78	9.8	73	42	1.63	8.5	61	45	1.36	6.4	
	15	73	43	1.62	8.4	67	45	1.48	7.3	56	48	1.24	5.5	
80/60	-3	81	29	0.99	3.9	74	31	0.91	3.4	62	34	0.76	2.59	50 mm
	3	74	32	0.91	3.4	68	34	0.83	3.05	57	37	0.69	2.23	
	9	67	35	0.82	3.00	61	37	0.75	2.60	51	39	0.63	1.93	
	15	60	38	0.73	2.51	55	40	0.67	2.19	46	42	0.56	1.61	
60/40	-3	54	18	0.66	2.15	49	19	0.6	1.84	41	21	0.5	1.35	50 mm
	3	47	21	0.57	1.71	43	22	0.52	1.48	36	24	0.43	1.07	
	9	39	24	0.48	1.31	36	25	0.43	1.10	30	26	0.36	0.81	
	15	32	27	0.38	0.91	29	28	0.35	0.80	24	29	0.29	0.58	

XBOXER Size 9

2 ROW

Air Volume Flow rate (m^3/s)

Water on/off C	Air On C	Heat Output (kW)	Air Off C	3.9 Water flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off C	3 Water flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off C	2 Water flow rate (l/s)	Water dp (kPa)	Connection size
82/71	-3	157	30	3.5	11.8	139	35	3.1	9.9	106	40	2.35	6.6	50 mm
	3	144	34	3.2	10.4	128	38	2.85	8.8	98	43	2.17	5.9	
	9	132	37	2.9	9.1	117	41	2.61	7.7	90	46	1.99	5.3	
	15	119	40	2.6	7.9	106	44	2.36	6.7	81	48	1.8	4.6	
80/60	-3	131	25	1.6	3.9	116	29	1.42	3.3	89	33	1.1	2.28	50 mm
	3	118	28	1.44	3.4	105	32	1.28	2.87	81	36	0.99	1.97	
	9	106	31	1.29	2.92	94	35	1.15	2.47	72	38	0.88	1.67	
	15	93	35	1.13	2.42	83	38	1	2.03	64	41	0.78	1.41	
60/40	-3	83	14	1	2.04	73	17	0.89	1.73	56	20	0.67	1.14	50 mm
	3	70	18	0.85	1.63	62	20	0.75	1.36	47	22	0.57	0.91	
	9	56	21	0.68	1.19	50	23	0.61	1.02	37	24	0.45	0.65	
	15	42	24	0.51	0.80	37	25	0.45	0.66	25	25	0.31	0.39	

XBOXER Size 10

2 ROW

Air Volume Flow rate (m^3/s)

Water on/off C	Air On C	Heat Output (kW)	Air Off C	4.8 Water flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off C	4.2 Water flow rate (l/s)	Water dp (kPa)	Heat Output (kW)	Air Off C	3.2 Water flow rate (l/s)	Water dp (kPa)	Connection size
82/71	-3	201	31	4.5	13	189	34	4.2	11.7	166	40	3.7	9.6	50 mm
	3	184	35	4.1	11.2	174	37	3.9	10.3	153	42	3.4	8.5	
	9	168	38	3.7	9.8	158	40	3.5	9	139	45	3.1	7.5	
	15	151	41	3.4	8.4	143	43	3.2	7.7	125	47	2.8	6.4	
80/60	-3	161	25	1.97	4	152	27	1.86	3.8	134	32	1.64	3.2	50 mm
	3	145	28	1.77	3.5	137	30	1.67	3.3	121	34	1.48	2.66	
	9	128	31	1.56	2.95	121	33	1.48	2.72	107	37	1.31	2.24	
	15	111	34	1.36	2.43	106	36	1.29	2.24	93	39	1.14	1.85	
60/40	-3	96	13	1.16	1.95	91	15	1.1	1.79	80	18	0.97	1.47	50 mm
	3	79	16	0.96	1.49	75	18	0.91	1.37	66	20	0.8	1.12	
	9	61	19	0.74	1.04	58	20	0.7	0.95	50	22	0.61	0.77	
	15	39	22	0.48	0.57	36	22	0.43	0.48	29	23	0.35	0.35	

For further assistance please call Nuaire.
Note: dp figures do not include 3 port valve, approximately divide these figures if valves are included.

*Please note: above tables are based on indicative selections. For more specific selection, contact Nuaire.

Code descriptions

S10 - XBV - R L 2

1 2 3 4 5

1. Unit reference
2. XBOXER V stacked
3. R = Right hand component layout
4. L = LPHW
5. No number = 1 row coil
   2 = 2 row coil or 3 = 3 row coil

HEAT RECOVERY PERFORMANCE

To determine the temperature of the supply air - after the heat exchanger module (but before the heater if fitted), refer to the following table. When selecting heater batteries, use this temperature as the "Air On" temperature in the coil selection tables.

Heat Exchanger Temperature Ratio (%) ("efficiency")	Intake Air Temperature (deg C) (External)	(ROOM) Extract Air Temperature (deg C)					
		5	10	15	20	25	30
		Supply Air Temperature (deg C)					
55	-5	1	3	6	9	12	14
	0	3	6	8	11	14	17
	5	5	8	11	13	16	19
	10	7	10	13	16	18	21
	15	10	12	15	18	21	23
60	-5	1	4	7	10	13	16
	0	3	6	9	12	15	18
	5	5	8	11	14	17	20
	10	7	10	13	16	19	22
	15	9	12	15	18	21	24
65	-5	2	5	8	11	15	18
	0	3	7	10	13	16	20
	5	5	8	12	15	18	21
	10	7	10	13	17	20	23
	15	9	12	15	18	22	25
70	-5	2	6	9	13	16	20
	0	4	7	11	14	18	21
	5	5	9	12	16	19	23
	10	7	10	14	17	21	24
	15	8	12	15	19	22	26
75	-5	3	6	10	14	18	21
	0	4	8	11	15	19	23
	5	5	9	13	16	20	24
	10	6	10	14	18	21	25
	15	8	11	15	19	23	26
80	-5	3	7	11	15	19	23
	0	4	8	12	16	20	24
	5	5	9	13	17	21	25
	10	6	10	14	18	22	26
	15	7	11	15	19	23	27
85	-5	4	8	12	16	21	25
	0	4	9	13	17	21	26
	5	5	9	14	18	22	26
	10	6	10	14	19	23	27
	15	7	11	15	19	24	28
90	-5	4	9	13	18	22	27
	0	5	9	14	18	23	27
	5	5	10	14	19	23	28
	10	6	10	15	19	24	28
	15	6	11	15	20	24	29

Other conditions may be calculated using the equation:

η_t = Thermal efficiency $(t_{supply} - t_{intake}) / (t_{extract} - t_{intake})$

This table and equation assume that the supply and extract mass flow rates are equal.

Note: for specific fan power ratings contact Nuaire for details.

HOW MUCH ENERGY DOES THE EXCHANGER SAVE?

In a building ventilation system that does not have a heat recovery facility, the air used for ventilation enters the building at the external ambient temperature, and is expelled from the building at approximately room temperature.

This increase in temperature may be caused directly by heaters intended to raise the air temperature to a suitable value for supply to occupied rooms, or indirectly by heat transfer from the buildings internal surfaces and existing air content.
This "ventilation heat loss" can be quantified as:
Air Mass Flow rate (kg/s) (Air volume flow rate (m^3/s) x Air density (kg/m3)
x Temperature difference (deg C) [Ta internal – Ta external]
x Specific Heat Capacity of air (kJ/kg deg C)
(Approx = 1)

Using some typical (heating season) values, the power required to heat unit air flow, and which is then lost is:
= 1m^3/s x 1.2 kg/m3 x (22-6) deg C x 1
= 19.2 kW

Heat recovery systems reduce this heat loss by transferring the heat contained in the extracted air to the supply air.
A system with a heat exchange efficiency of 70% will recover 70% of the energy supplied therefore reducing the power required.

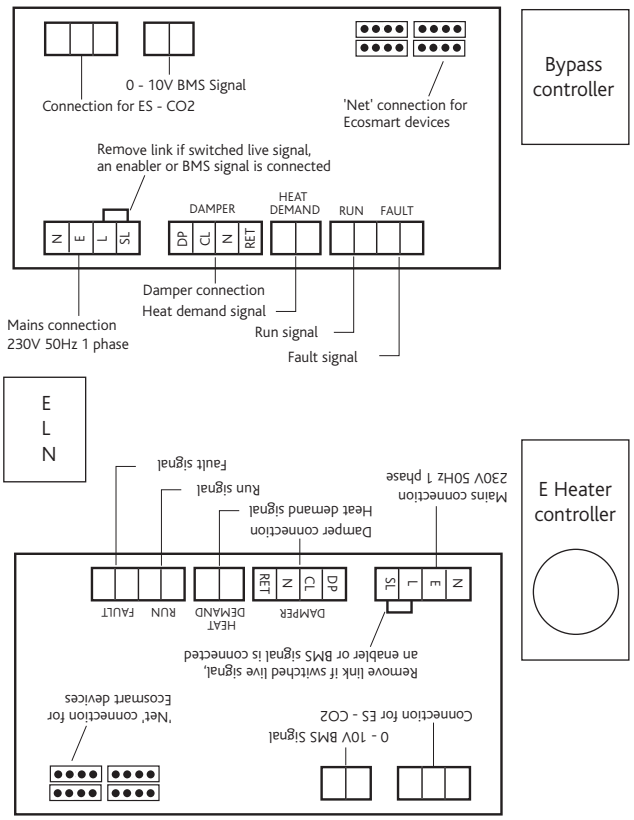
There is of course an energy penalty in terms of the additional pressure loss due to the heat exchanger element itself, and this needs to be minimized by optimal selection of the system fans, motors and control systems. Generally, it can be demonstrated that the additional system losses are small compared to the reduction in heating load.

ELECTRIC HEATING

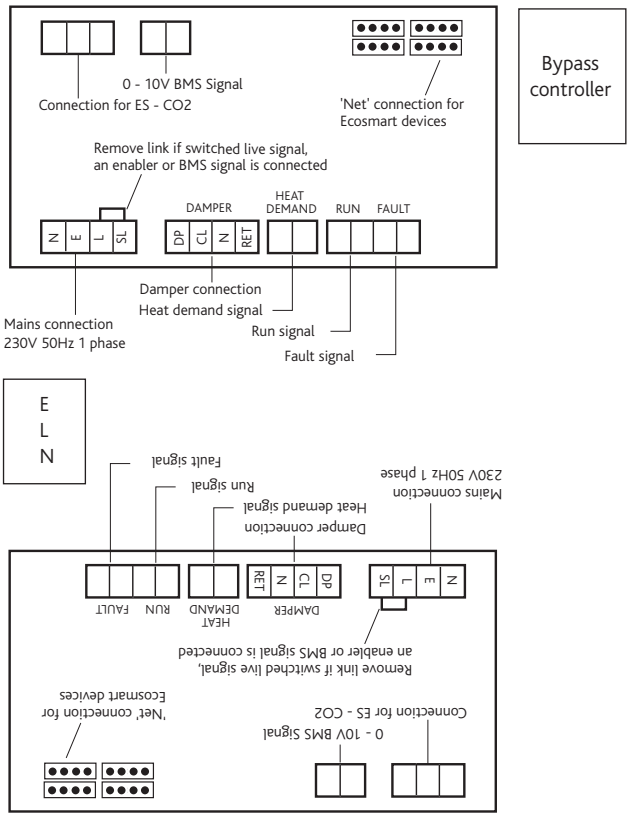
To find the final supply air temperature when an electric heater is required, use the following table:

Air Volume Flow rate m^3/s	Intake Air Temperature (deg C)	Electric heater kW										
		2	3	6	9	12	15	18	21	24	27	54
		Supply Air Temperature (deg C)										
0.1	-5 0 5 10 15	12 17 22 27 32	20 25 30 35									
0.2	-5 0 5 10 15	8 13 18 23	8 13 18 23 28	20 25 30 35	33 38							
0.4	-5 0 5 10 15	9 14 19	6 11 16 21	8 13 18 23 28	14 19 24 29 34	20 25 30 35	26 31 36	33 38				
0.6	-5 0 5 10 15	8 13 18	9 14 19	8 13 18 23	8 13 18 23 28	12 17 22 27 32	16 21 26 31 36	20 25 30 35	24 29 34 39	28 33 38	33 38	
0.8	-5 0 5 10 15	7 12 17	8 13 18	6 11 16 21	9 14 19 24	8 13 18 23 28	11 16 21 26 31	14 19 24 29 34	17 22 27 32 37	20 25 30 35	23 28 33 38	
1	-5 0 5 10 15	7 12 17	8 13 18	5 10 15 20	8 13 18 23	5 10 15 20 25	8 13 18 23 28	10 15 20 25 30	13 18 23 28 33	15 20 25 30 35	18 23 28 33 38	40
1.5	-5 0 5 10 15	6 11 16	7 12 17	8 13 18	5 10 15 20	7 12 17 22	8 13 18 23	5 10 15 20 25	7 12 17 22 27	8 13 18 23 28	10 15 20 25 30	25 30 35 40
2	-5 0 5 10 15	6 11 16	6 11 16	8 13 18	9 14 19	5 10 15 20	6 11 16 21	8 13 18 23	9 14 19 24	5 10 15 20 25	6 11 16 21 26	18 23 28 33 38
3	-5 0 5 10 15	6 11 16	6 11 16	7 12 17	8 13 18	8 13 18	9 14 19	5 10 15 20	6 11 16 21	7 12 17 22	8 13 18 23	10 15 20 25 30

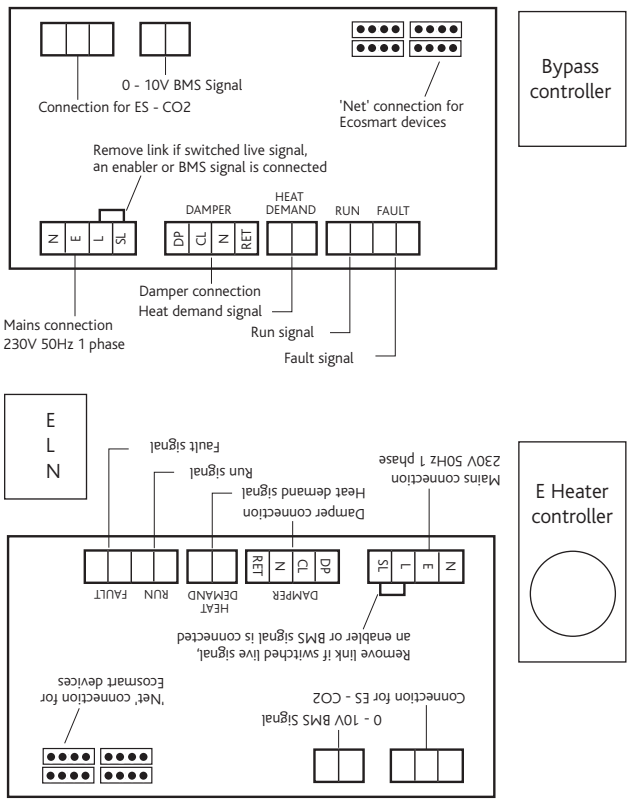
WIRING FOR XB2-5 & S6-XB-R/L E EXTRACT/SUPPLY



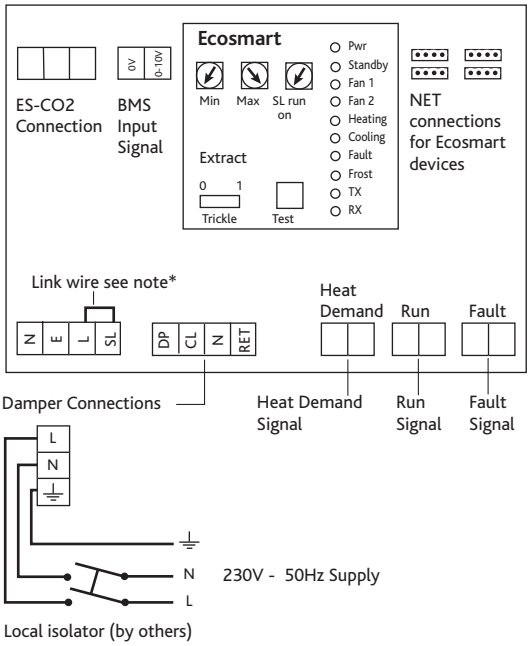
S1-XB & S6-XB-R/L N EXTRACT/SUPPLY

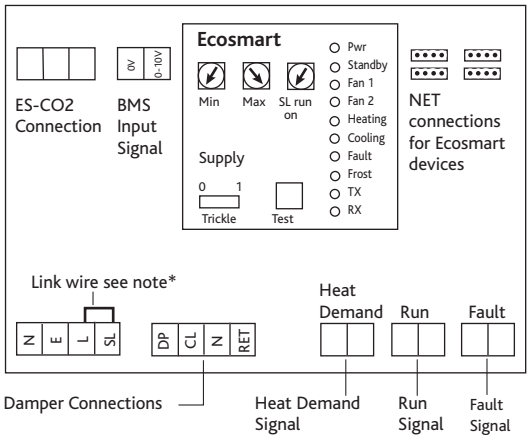


WIRING FOR S1-XB, XB2-5 & S6-XB-R/L L EXTRACT/SUPPLY



XB2-5 WITH ECOSMART FAN ONLY CONTROL

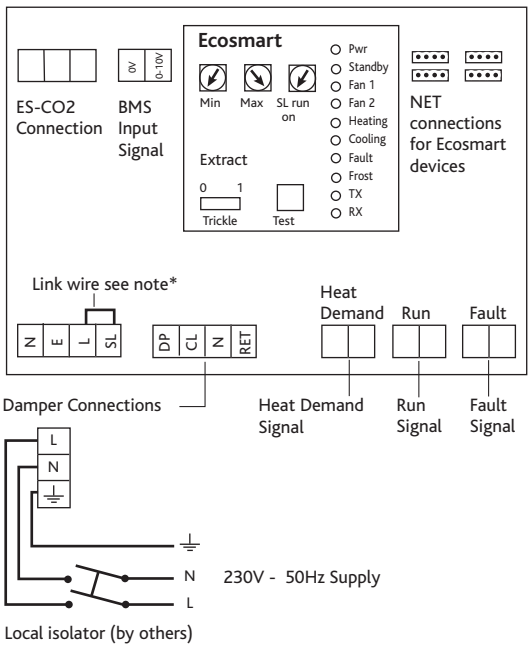


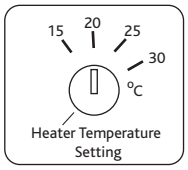


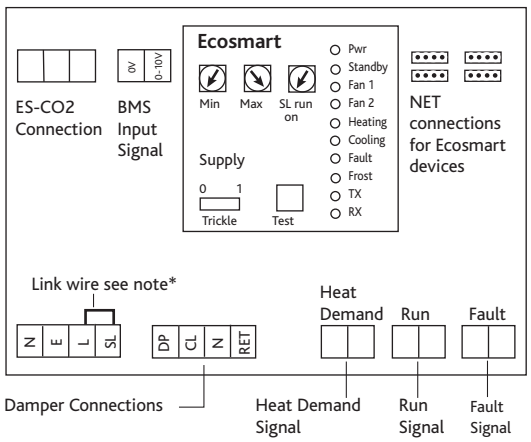
All inter-connections between circuit boards, blowers and sensors are made at the factory. This diagram only shows the essential field wiring points for clarity.

*Remove link wire if switched live signal, an enabler or BMS signal is connected.

XB2-5 WITH ECOSMART CONTROL AND ELECTRIC HEATER



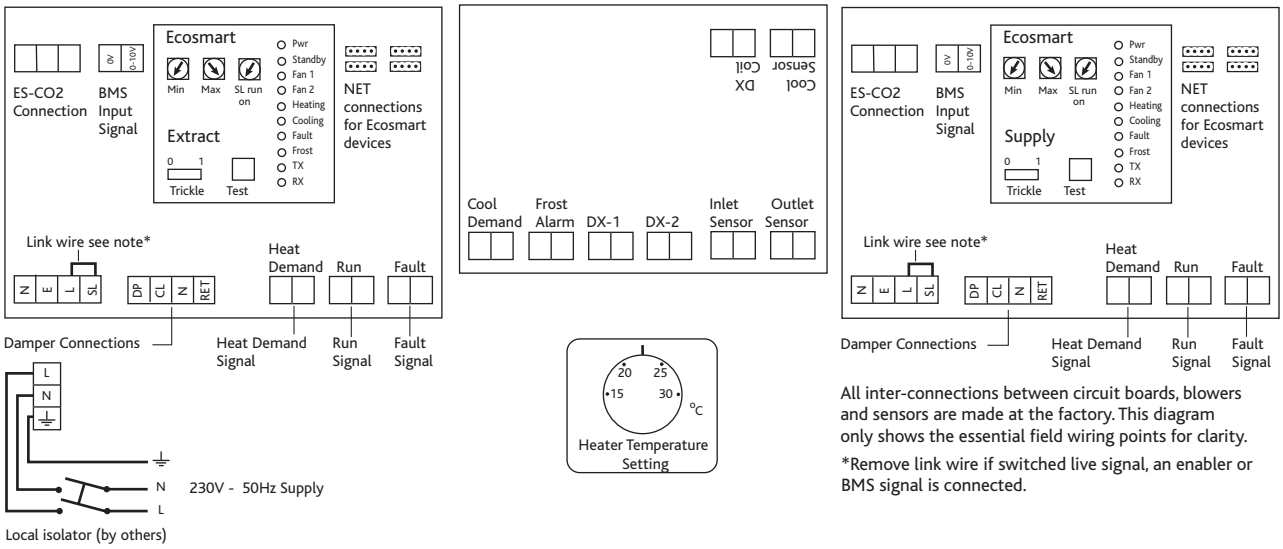




All inter-connections between circuit boards, blowers and sensors are made at the factory. This diagram only shows the essential field wiring points for clarity.

*Remove link wire if switched live signal, an enabler or BMS signal is connected.

XB2-5 WITH ECOSMART FAN AND LPHW COIL CONTROL



All inter-connections between circuit boards, blowers and sensors are made at the factory. This diagram only shows the essential field wiring points for clarity.

*Remove link wire if switched live signal, an enabler or BMS signal is connected.

WIRING - FOR UNITS SUPPLIED WITHOUT ECOSMART CONTROL

The wiring illustrations below are for the fans, bypass damper and electric heater for units without control. All wiring is terminated in junction boxes fitted to the specified side of the unit.

It is the installer's responsibility to select and fit the appropriate control equipment to produce the desired output.

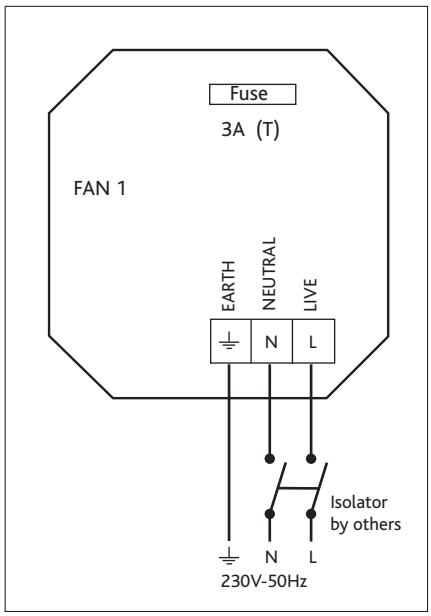
Note that any heating/cooling coils fitted are supplied without control valve and actuator.

ELECTRICAL DETAILS

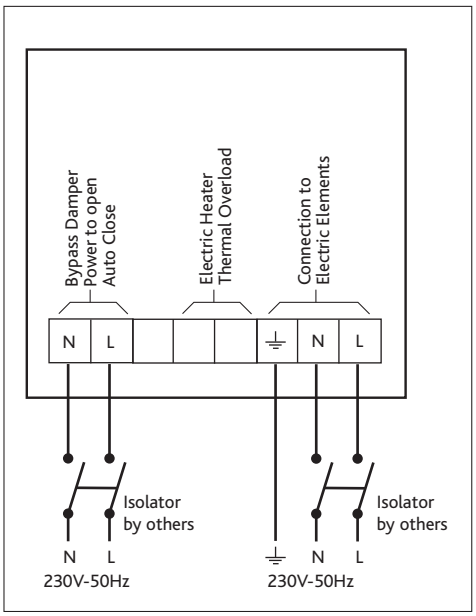
Fan motor ratings			Electric heater ratings (if fitted)	
Unit size	**flc**	**sc**	**kW**	**flc**
XB2	2 x 0.75A	2 x 3A	4.5kW	18.7A
XB3	2 x 0.75A	2 x 3A	4.5kW	18.7A
XB4	2 x 1.2A	2 x 4.8A	4.5kW	18.7A
XB5	2 x 1.2A	2 x 4.8A	4.5kW	18.7A

Bypass damper rated at 3W, 13mA for all unit sizes.

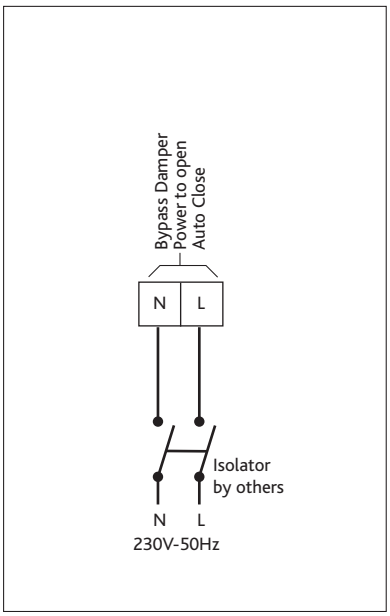
(Unit sizes XB2-5) Fan wiring. Two per unit and one per blower.



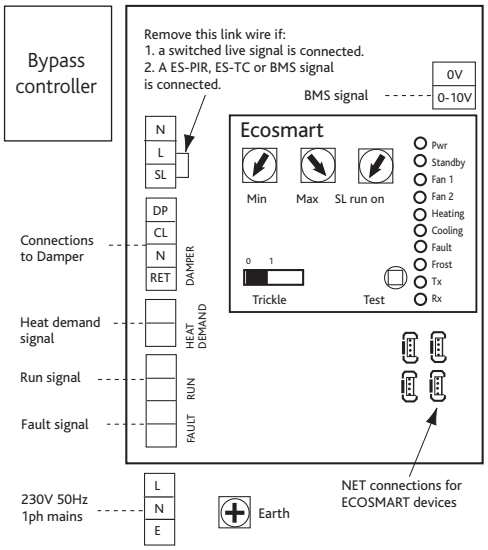
(Unit sizes XB2-5) with electric heater, heat exchanger bypass damper and electric heater wiring.



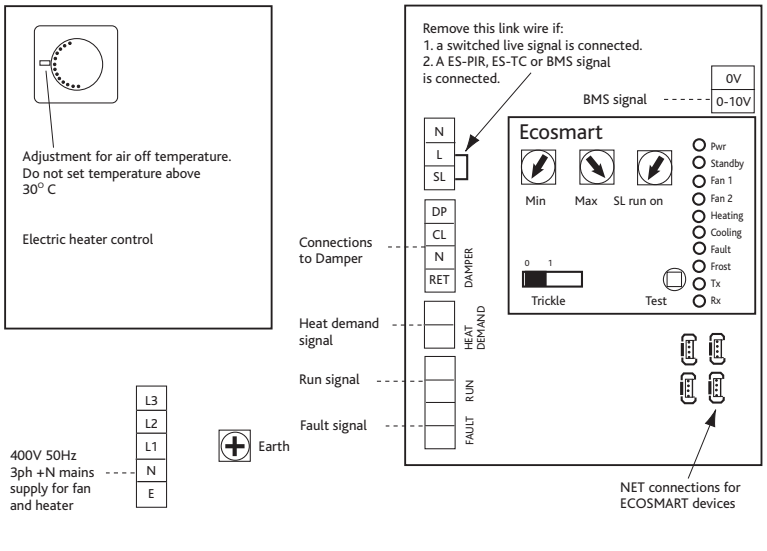
(Unit sizes XB2-5) Fan only or with LPHW coil, heat exchanger bypass damper wiring.



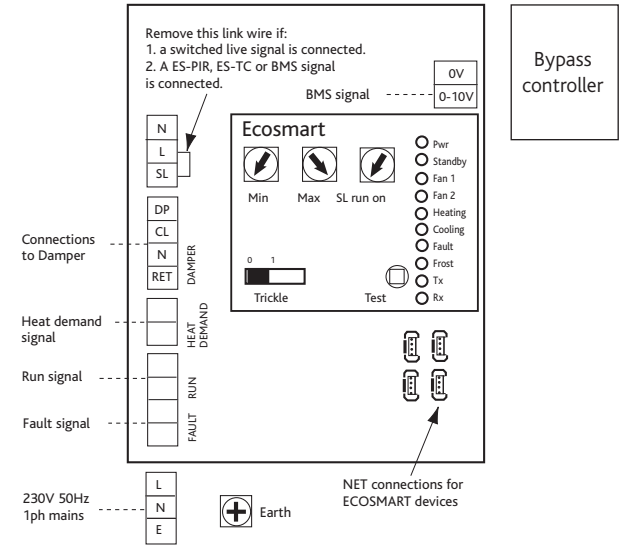
WIRING FOR S6-XB V/H-R/L E EXTRACT



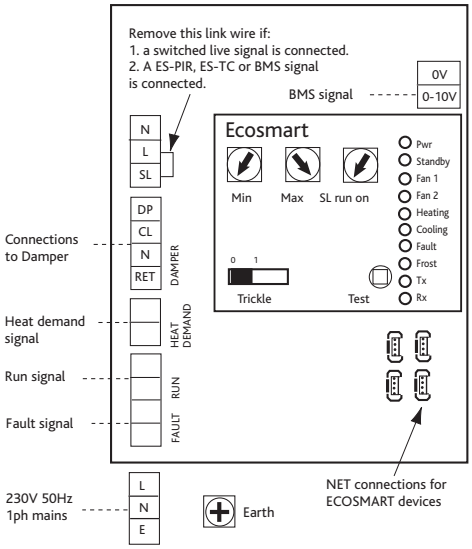
S6-XB V/H--R/L E SUPPLY



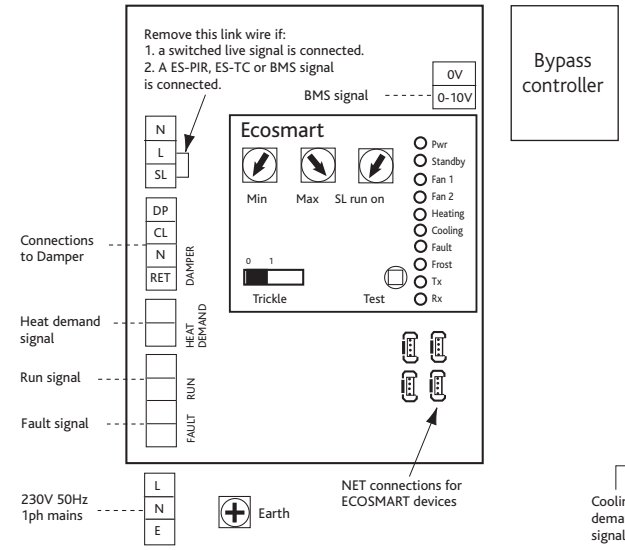
WIRING FOR S6-XB V/H-R/L N EXTRACT



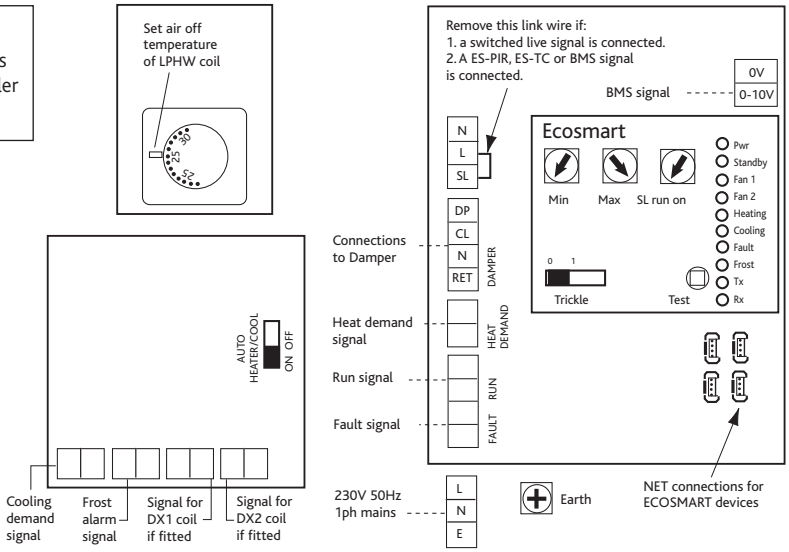
S6-XB V/H-R/L N SUPPLY



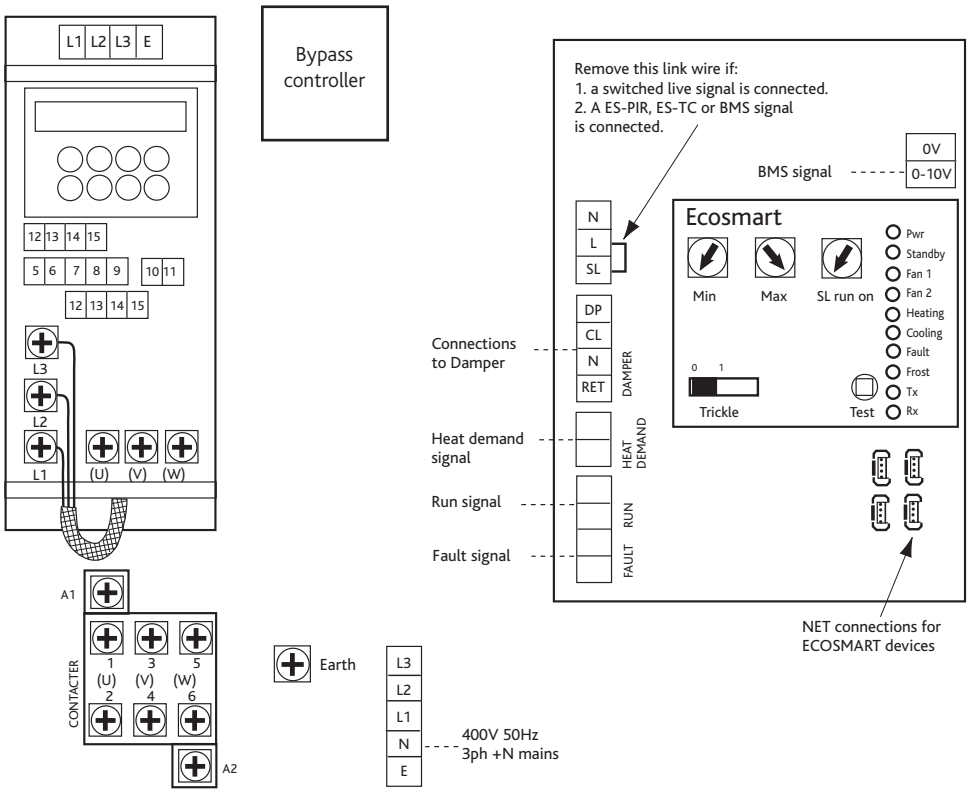
WIRING FOR S6-XB V/H-R/L L EXTRACT



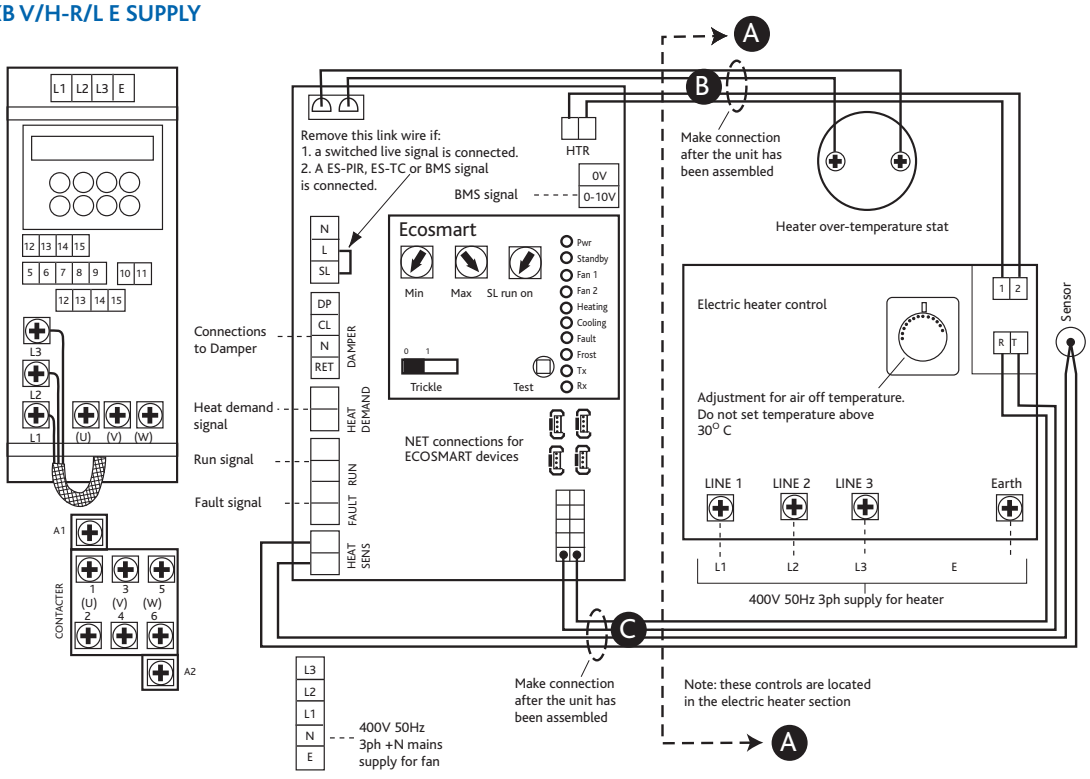
S6-XB V/H-R/L L SUPPLY



WIRING FOR S7, 8-XB V/H-R/L E EXTRACT

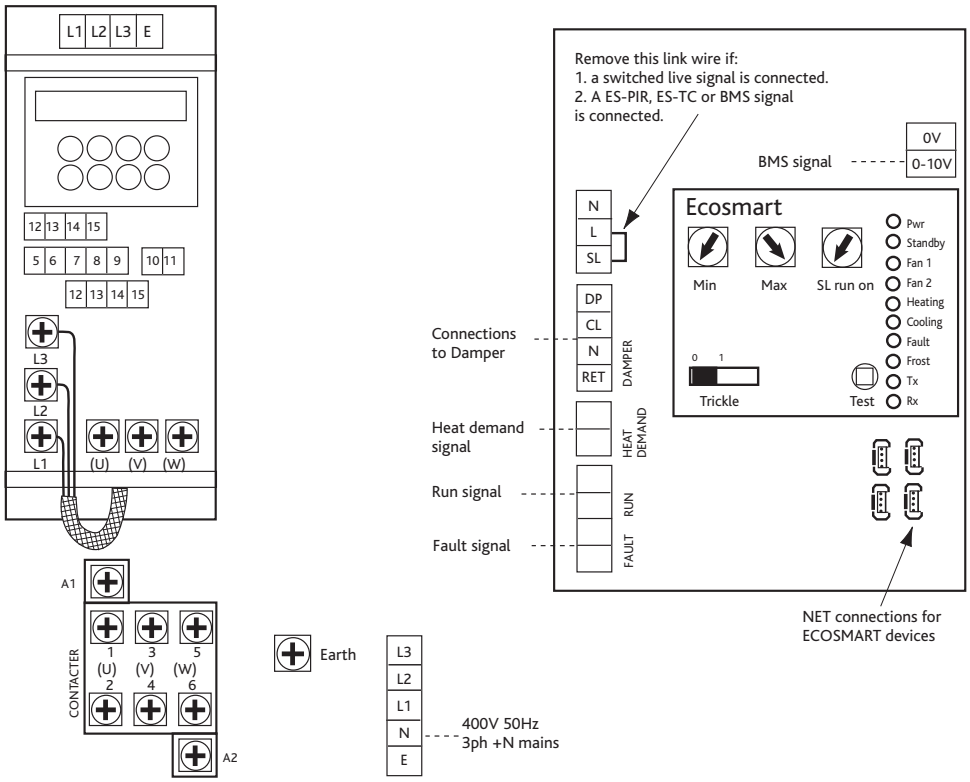


WIRING FOR S7, 8-XB V/H-R/L E SUPPLY

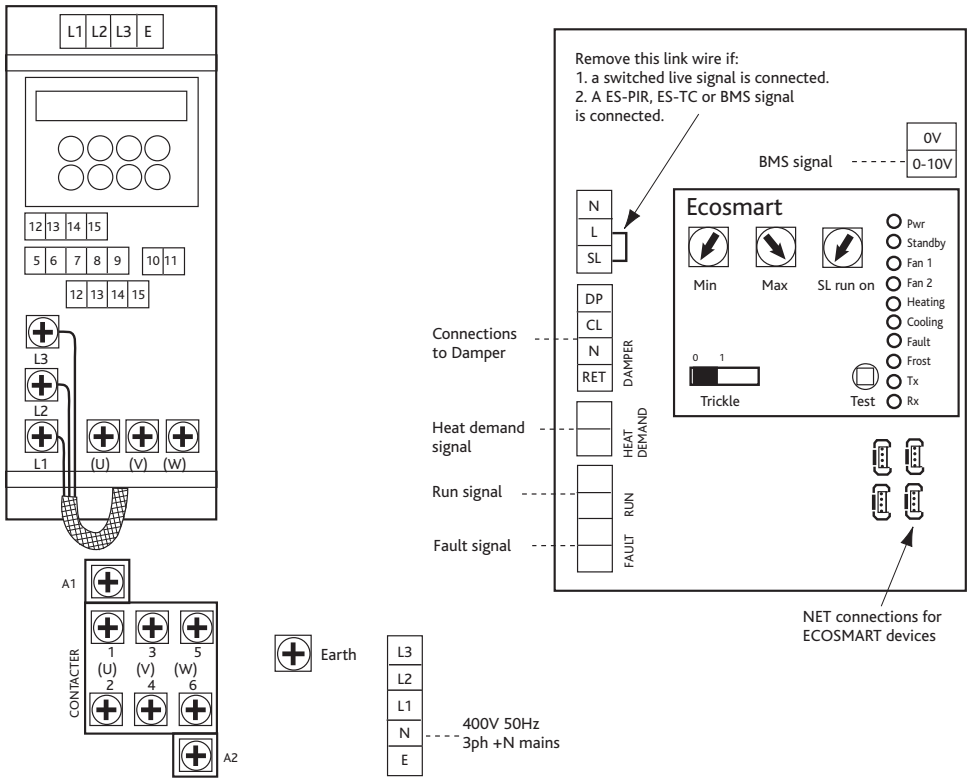


Important: Section A is an adjacent module in which additional controls and sensors are installed. Ensure these devices are connected to the Ecosmart control by terminating at points B & C.

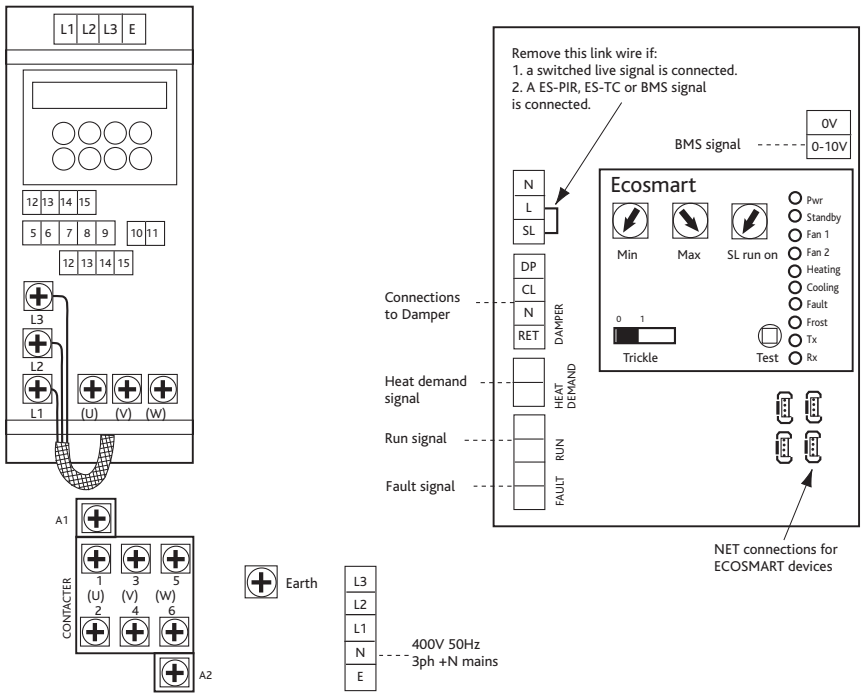
WIRING FOR S7, 8, 9 AND 10-XB V/H-R/L N EXTRACT



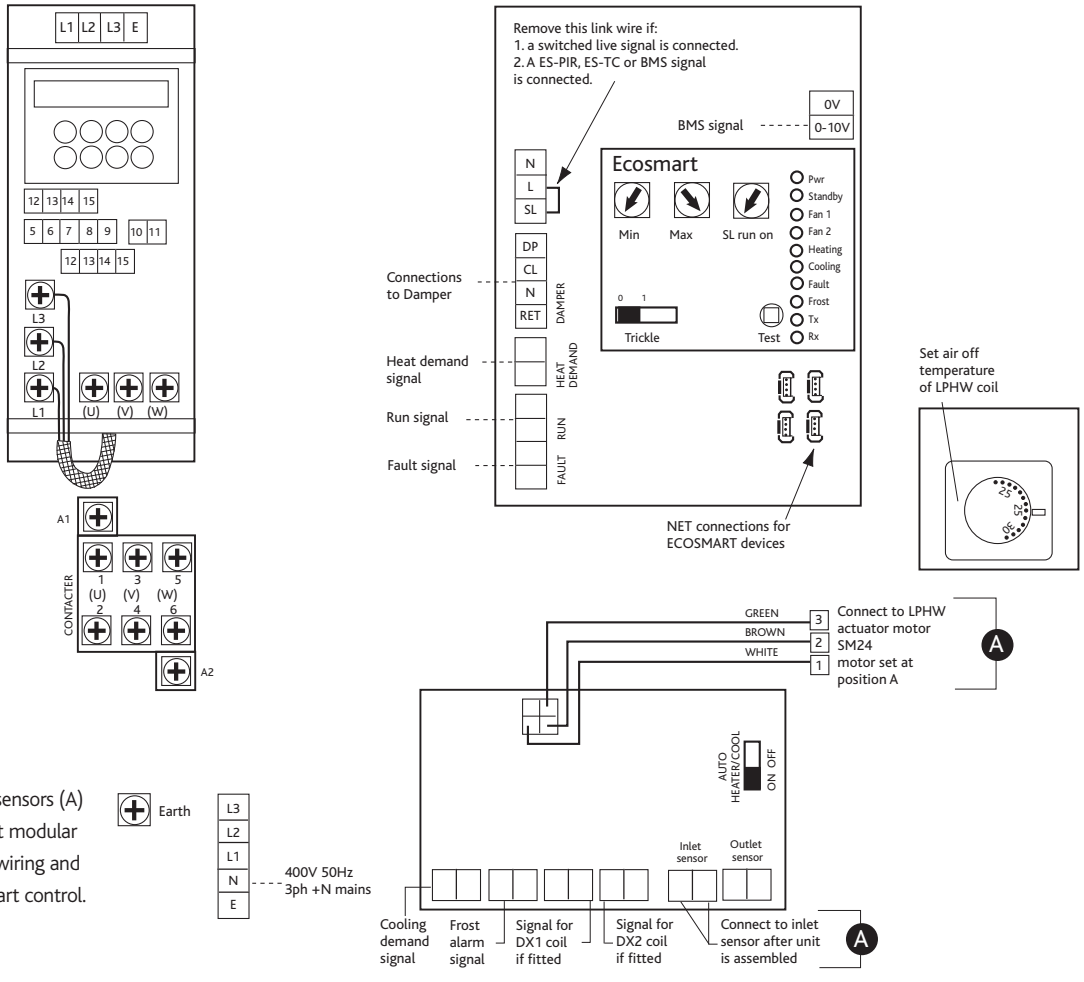
WIRING FOR S7, 8, 9 AND 10-XB V/H-R/L N SUPPLY



WIRING FOR S7, 8, 9 AND 10-XB V/H-R/L L EXTRACT



WIRING FOR S7, 8, 9 AND 10-XB V/H-R/L L SUPPLY



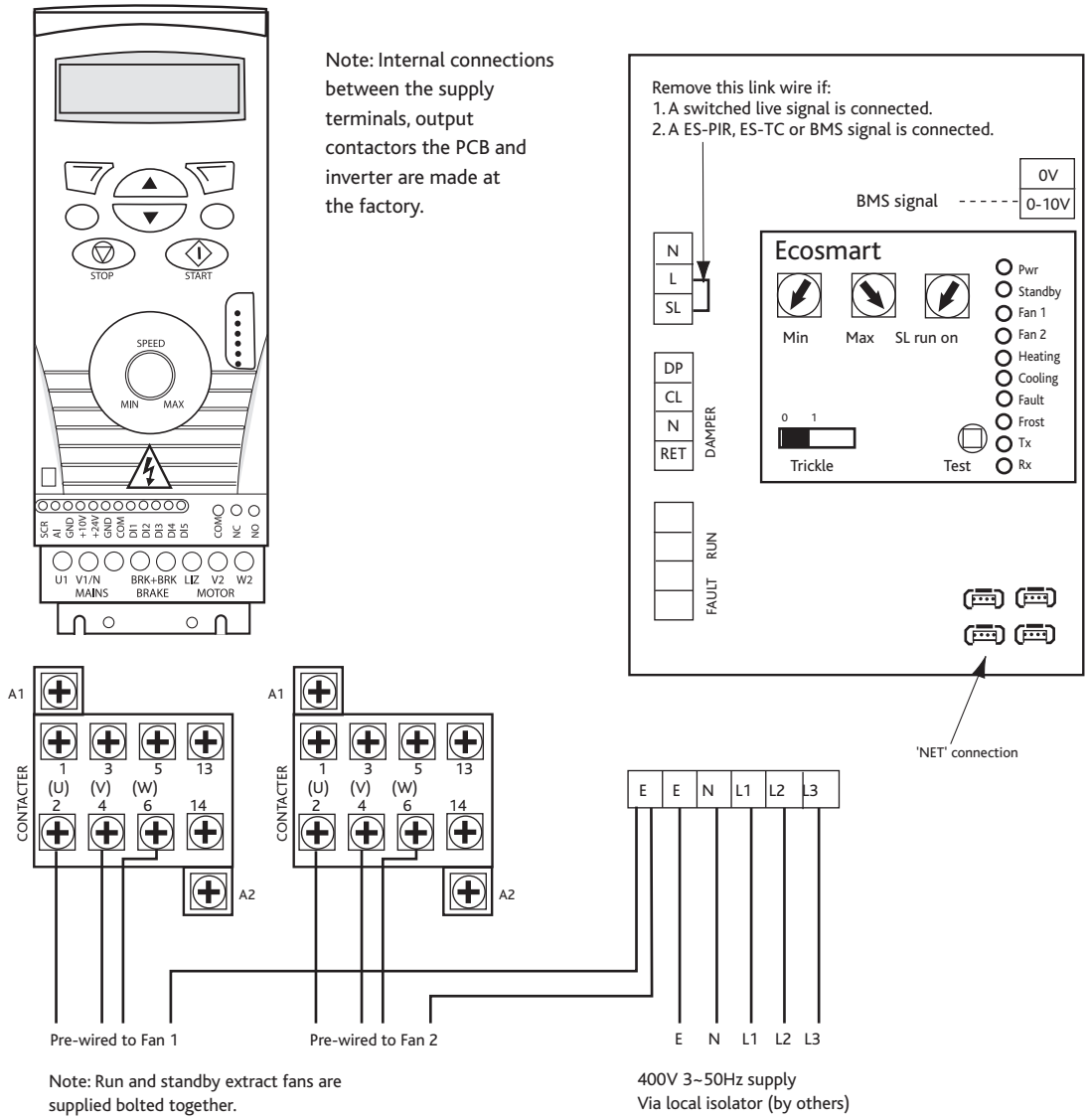
Important: Actuator and sensors (A) are positioned in adjacent modular sections and will require wiring and connection to the Ecosmart control.

WIRING FOR TWINFAN UNITS XB6T AND XB8T (STANDBY EXTRACT FAN)

Below is the wiring diagram for the Xboxer twin/standby fan relay box.
This box is located on the standby fan and is connected at works to an Ecosmart direct drive control.

The customer has to connect the fault terminals of the Ecosmart control to the relay box.

If the main Xboxer extract fan should fail then the fault contact will close and therefore energise the relay. The normally open contacts will then close powering up the SL contact of the standby fan. It therefore follows that the customers wiring is 240V and not low voltage.



CONSULTANTS SPECIFICATION

XBOXER STACKED UNITS

OPERATION

The supply and extract ventilation unit shall be as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. Supply air to the room shall be pre-heated by the extract air via the integrated heat exchanger matrix. Where fitted an integrated heater battery shall raise the temperature of the supply air to the design room temperature after the air has passed through the heat exchanger. The ventilation unit shall automatically vary the ventilation rate, as it receives signals from one of the optional interconnected sensors. When signals are received, the fan shall either vary its speed proportionally or on a trickle and boost principle. The unit shall have the facility to commission the supply and extract fans individually via inbuilt minimum and maximum speed adjustment, the fans themselves shall have infinitely variable speed control.

XBOXER STACKED - UNIT SPECIFICATION

Unit codes XB shall be manufactured in aluminium alloy with 25mm double skinned infil panels and extruded aluminium frame. Unit codes XBV and H shall be manufactured from Aluzinc with 25mm infill panels, giving extremely low noise levels. It shall be come c/w a high efficiency heat exchanger matrix, supply and extract filters, automatic summer bypass, integral minimum and maximum infinitely variable speed controls, run on timer and facia mounted failure indication. The unit shall have low energy, high efficiency a.c. fan/motor assemblies with sealed for life bearings. The Impellers shall be high efficiency mixed flow or centrifugal type.

The unit shall have a robust plastic/aluminium heat exchanger matrix with a thermal efficiency of up to 55 - 70% that shall be protected by G4* grade pleated filters on supply and extract. It shall come complete with a condensate drip tray and 22mm drain connection. Alternatively a condensate pump shall be provided if specified.

The unit shall be constructed with removable panels allowing full maintenance access from the sides (access handing to be confirmed in product code and verified on site prior to order).

The removable panels shall provide access to the following:

- Supply or extract fan.
- Supply & extract filter.
- Heat exchanger block.
- Heater battery temperature adjustment (where included).
- LPHW Heater pipe connections. (where included).
- Speed control commissioning adjustment (min & max).
- Electrical connection terminal blocks.

Units shall be as manufactured by Nuaire.

* Other filter specifications including high capacity filters & grade F7 available as integrated options. (contact Nuaire).

XBOXER STACKED - STANDARD CONTROLS

All versions shall incorporate the following functions integrally mounted, pre-wired and factory fitted by the manufacturer: -

- Integral infinitely variable speed control on supply and extract.
- Integral background ventilation control/set point.
- Integral boost ventilation control/set point.
- Integral BMS interfaces – summer/winter switching, heating control**, 0-10V speed adjustment.
- Integral run on timer.
- Volt free failure indication (direct from individual fan).
- Integral S/L terminal for boost trigger from remote switch, e.g. lightswitch.
- Integral air off coil temperature adjustment**
- Volt free frost alarm/heat demand interface**
- Frost protection/hold off stat**
- The unit shall be controlled by the ECOSMART control devices (enablers & sensors) as detailed in the schedule on the drawings.
- LPHW pipework connections c/w diverting valve and actuator.**

** Versions incorporating heater sections.

INVERTER DRIVES

Sizes 2 - 5 have AC control, size 6 has EC control and sizes 7, 8, 9 and 10 have integral frequency inverter/speed control.

COIL TYPES AND CONTROLS

The control for the coils shall be fully integrated and shall maintain a constant off coil temperature between 15 - 30 degrees due to Ecosmart limitations. The system shall have frost protection which shall, at temperatures below 4 degrees C, fully open the 3 or 4-port valve and only start the fan when the temperature at the filter has risen above the designated set point.

LOW PRESSURE HOT WATER

The Low Pressure Hot Water heating coil shall be factory fitted with a 3 or 4 port valve, drain cocks and air vents. The actuator controlling the 3 or 4 port valve shall be controlled via the on-board PCB by the off coil temperature sensor. All components pre-piped, assembled and tested by the manufacturers.

ELECTRIC

The Electric Heater Battery shall be factory fitted and pre-wired to an integral closed loop thyristor control. When the unit is switched off, the fan shall continue to run to dissipate heat from the electric heater battery before stopping.

The Ecosmart control unit shall have a 5 year warranty.

The manufacturer's recommendations should be observed at all times. The unit shall be the XBOXER and shall be manufactured by Nuaire.

CONSULTANTS SPECIFICATION

XBOXER HORIZONTAL UNITS

OPERATION

The supply and extract ventilation unit shall be as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. Supply air to the room shall be pre-heated by the extract air via the integrated heat exchanger matrix. Where fitted an integrated heater battery shall raise the temperature of the supply air to the design room temperature after the air has passed through the heat exchanger. The ventilation unit shall automatically vary the ventilation rate, as it receives signals from one of the optional interconnected sensors. When signals are received, the fan shall either vary its speed proportionally or on a trickle and boost principle. The unit shall have the facility to commission the supply and extract fans individually via inbuilt minimum and maximum speed adjustment, the fans themselves shall have infinitely variable speed control.

XBOXER HORIZONTAL - UNIT SPECIFICATION

Unit codes XB shall be manufactured in aluminium alloy with 25mm double skinned infil panels and extruded aluminium frame. Unit codes XBV and H shall be manufactured from Aluzinc with 25mm infil panels, giving extremely low noise levels. The unit shall have a high efficiency aluminium heat exchanger matrix, supply and extract filters, automatic summer bypass, integral minimum and maximum infinitely variable speed controls, run on timer and facia mounted failure indication. The unit shall have low energy, high efficiency a.c. fan/motor assemblies with sealed for life bearings. Impellers shall be high efficiency mixed flow or centrifugal type.

The unit shall have a heat exchanger block with a thermal efficiency of up to 70%, that shall be protected by G4* grade pleated filters on supply and extract. Complete with condensate drip tray and 22mm drain connection (XB2-5 has a 15mm drain connection). Alternatively a condensate pump shall be provided if specified.

The unit shall be constructed with removable panels allowing full maintenance access from both sides (access handing to be confirmed in product code and verified on site prior to order).

The removable panels shall provide access to the following:

- Supply or extract fan.
- Supply & extract filter.
- Heat exchanger block.
- Heater battery temperature adjustment (where included).
- LPHW Heater pipe connections. (where included).
- Speed control commissioning adjustment (min & max).
- Electrical connection terminal blocks.

Units shall be as manufactured by Nuaire.

*Other filter specifications including high capacity filters & grade F7 available as integrated options. (contact Nuaire).

XBOXER HORIZONTAL - ECOSMART CONTROLS

All versions shall incorporate the following functions integrally mounted, pre-wired and factory fitted by the manufacturer: -

- Integral infinitely variable speed control on supply and extract.
- Integral background ventilation control/set point.
- Integral boost ventilation control/set point.
- Integral BMS interfaces – summer/winter switching, heating control**, 0-10V speed adjustment.
- Integral run on timer.
- Volt free failure indication (direct from individual fan).
- Integral S/L terminal for boost trigger from remote switch, e.g. lightswitch.
- Integral air off coil temperature adjustment**
- Volt free frost alarm/heat demand interface**
- Frost protection/hold off stat**
- The unit shall be controlled by the ECOSMART control devices (enablers & sensors) as detailed in the schedule on the drawings.
- LPHW pipework connections c/w diverting valve and actuator.**

** Versions incorporating heater sections.

INVERTER DRIVES

Sizes 2 - 5 have AC control, size 6 has EC control and sizes 7, 8, 9 and 10 have integral frequency inverter/speed control.

Unit provides side mounting of termination box to connect supply and extract fan motor wiring (terminal boxes) for interface to custom built control panels. For this option, no sensors are fitted to the unit, but with plate heat exchanger units the bypass damper actuator is included.

COIL TYPES AND CONTROLS

The control for the coils shall be fully integrated and shall maintain a constant off coil temperature. The system shall have frost protection which shall, at temperatures below 4°C, fully open the 3 or 4-port valve and only start the fan when the temperature at the filter has risen above the designated set point.

LOW PRESSURE HOT WATER

The Low Pressure Hot Water heating coil shall be factory fitted with a 3 or 4 port valve, drain cocks and air vents. Shall be controlled by a motorised control valve. The actuator controlling the 3 or 4 port valve shall be controlled via the on-board PCB by the off coil temperature sensor. All components pre-piped, assembled and tested by the manufacturers.

ELECTRIC

The Electric Heater Battery shall be factory fitted and pre-wired to an integral closed loop thyristor control. When the unit is switched off, the fan shall continue to run to dissipate heat from the electric heater battery before stopping.

The Ecosmart control unit shall have a 5 year warranty.

The manufacturer's recommendations should be observed at all times.
The unit shall be the XBOXER and shall be manufactured by Nuaire.

CONSULTANTS SPECIFICATION

XBOXER TWINFAN UNITS

OPERATION

The supply and extract ventilation unit shall be as indicated on the drawings and shall be in accordance with the particular fan schedule in the specification. Supply air to the room shall be pre-heated by the extract air via the integrated heat exchanger matrix. Where fitted an integrated heater battery shall raise the temperature of the supply air to the design room temperature after the air has passed through the heat exchanger.

The ventilation unit shall automatically vary the ventilation rate, as it receives signals from one of the optional interconnected sensors. When signals are received, the fan shall either vary its speed proportionally or on a trickle and boost principle. The unit shall have the facility to commission the supply and extract fans individually via inbuilt minimum and maximum speed adjustment, the fans themselves shall have infinitely variable speed control.

XBOXER TWINFANS - UNIT SPECIFICATION

Unit codes XB shall be manufactured in aluminium alloy with 25mm double skinned infil panels and extruded aluminium frame. Unit codes XBV and H shall be manufactured from Aluzinc with 25mm infill panels, giving extremely low noise levels. It shall be come c/w a high efficiency heat exchanger block, supply and extract filters, automatic summer bypass, integral minimum and maximum infinitely variable speed controls, run on timer and facia mounted failure indication. The unit shall have low energy, high efficiency a.c. fan/motor assemblies with sealed for life bearings. Impellers shall be high efficiency mixed flow or centrifugal type.

The unit shall have a robust plastic/aluminium heat exchanger matrix with a thermal efficiency of up to 55 - 70% that shall be protected by G4* grade pleated filters on supply and extract. It shall come complete with a condensate drip tray and 22mm drain connection. Alternatively a condensate pump shall be provided if specified.

The unit shall be constructed with removable panels allowing full maintenance access from the side (access handing to be confirmed in product code and verified on site prior to order). The removable panels shall provide access to the following:

- Supply or extract fan.
- Supply & extract filter.
- Heat exchanger block.
- Heater battery temperature adjustment (where included).
- LPHW Heater pipe connections. (where included).
- Speed control commissioning adjustment (min & max).
- Electrical connection terminal blocks.
- Units shall be the as manufactured by Nuaire.
- 2 fans incorporate auto change over in the event of one fan failing.

* Other filter specifications including high capacity filters & grade F7 available as integrated options.

XBOXER TWINFANS - ECOSMART CONTROLS

All versions shall incorporate the following functions integrally mounted, pre-wired and factory fitted by the manufacturer: -

- Integral infinitely variable speed control on supply and extract.
- Integral background ventilation control/set point.
- Integral boost ventilation control/set point.
- Integral BMS interfaces – summer/winter switching, heating control**, 0-10V speed adjustment.
- Integral run on timer.
- Volt free failure indication (direct from individual fan).
- Integral S/L terminal for boost trigger from remote switch, e.g. lightswitch.
- Integral air off coil temperature adjustment**
- Multiple IDC sockets for interconnection of up to 6 Ecosmart sensors, controllers or fans using pre-plugged 4-core low voltage cable.
- Volt free frost alarm/heat demand interface**
- Frost protection/hold off stat**
- The unit shall be controlled by the ECOSMART control devices (enablers & sensors) as detailed in the schedule on the drawings.
- 2 fans incorporate auto change over in the event of one fan failing.
- LPHW pipework connections c/w diverting valve and actuator.**

** Versions incorporating heater sections.

INVERTER DRIVES

Sizes 2 - 5 have AC control, size 6 has EC control.

NO CONTROL OPTION (SIZES 7-10 XBH + XBV)

Unit provides side mounting of termination box to connect supply and extract fan motor wiring (terminal boxes) for interface to custom built control panels. For this option, no sensors are fitted to the unit, but with plate heat exchanger units the bypass damper actuator is included.

COIL TYPES AND CONTROLS

The control for the coils shall be fully integrated and shall maintain a constant off coil temperature. The system shall have frost protection which shall, at temperatures below 4 degrees C, fully open the 3 or 4-port valve and only start the fan when the temperature at the filter has risen above the designated set point.

LOW PRESSURE HOT WATER

The Low Pressure Hot Water heating coil shall be factory fitted with a 3 or 4 port valve, drain cocks and air vents. The actuator controlling the 3 or 4 port valve shall be controlled via the on-board PCB by the off coil temperature sensor. All components pre-piped, assembled and tested by the manufacturers.

CONSULTANTS SPECIFICATION

XBOXER TWINFAN UNITS CONT.

ELECTRIC

The Electric Heater Battery shall be factory fitted and pre-wired to an integral closed loop thyristor control. When the unit is switched off, the fan shall continue to run to dissipate heat from the electric heater battery before stopping.

The Ecosmart control unit shall have a 5 year warranty.

The manufacturer's recommendations should be observed at all times.
The unit shall be the XBOXER and shall be manufactured by Nuaire.